THE VEGETATION OF MT. FUJI (JAPAN)

BY

B. HAYATA, Dr. Sc.

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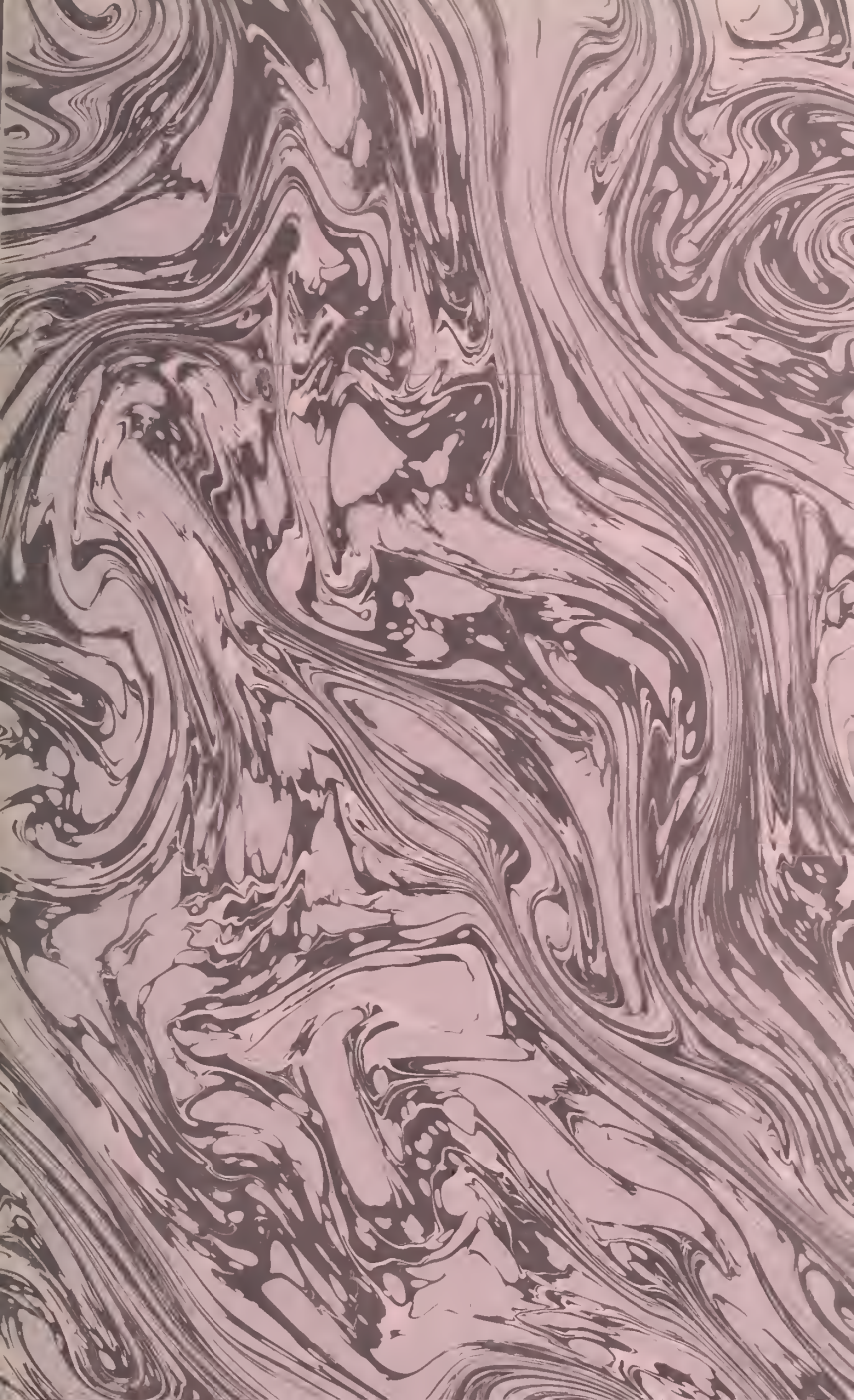

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Pl. I. View of Mt. Fuji, seen from Ōmiya; Larix, evergreen conifer, deciduous broad leaved tree, and prairie, regions are distinctly visible. (Sketched from nature by the author in April 1903.)

THE
VEGETATION OF MT. FUJI
(JAPAN)

理學博士　早田文藏著

富士植物帶論

富士山植物總目錄及ビ
富士山植物分布地圖

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The Vegetation of Mt. Fuji

With a Complete List of Plants found on the Mountain and a Botanical Map showing their Distribution

By

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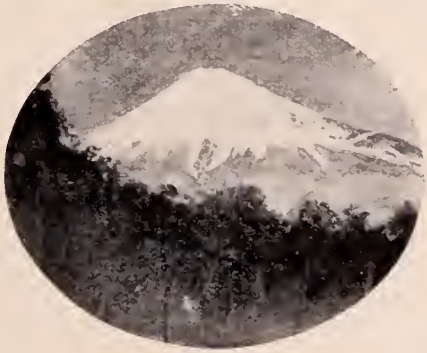
WITH EIGHT PLATES, A COLOURED BOTANICAL MAP AND THIRTY FIVE FIGURES IN THE TEXT.



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Distant view of Mt. Fuji, seen from the Wada-pass; the foreground shows a forest of *Pinus densiflora*, SIEB. et ZUCC.

(From the Atlas of Japanese Vegetation, by permission of Prof. M. MIYOSHI.)

In

Memory

of My Mother

Who

devoted Her Life to the Education of Her Three Sons and

by Whose Encouragement I was led to devote My

Own Life to the Study of Botany.

我等三人の兄弟を育て常に志を堅ふすべきを己に訓へ給ひし

亡き母君に報恩の紀念として此書を奉る

文　藏

明治戊申の歳亡き母君の第十三回の忌辰に當りて

INTRODUCTION.

ON the shore of the Pacific, towering to a height of more than twelve thousand feet, stands Mt. Fuji, symmetrical in shape and rich in vegetation, a fitting emblem of the Japanese nation. For several years past, I have taken a special interest in the botany of this beautiful mountain. The undulating prairie covering the gentle slope at the base, the dense forest stretching up to the middle, and higher up the dark growth of firs, are all so interesting and impressive that I have never tired of visiting it in every season of the year; observing how the vegetation changes as one makes the circuit of the mountain, or how the forest is differentiated according to height as one climbs to the peak. In summer, I have spent my vacations in the study of the flora, examining species after species, when all the prairie below is decorated with a great variety of flowers, and the broad leaved forest spreads out its foliage to the sunshine. But in winter, when the snow covers the peak and throws the dark forest of ever-green conifers into sharp relief, my attention has been turned to the investigation of the plant formations zone after zone, each conforming to a contour line which is in itself circular. No other mountain in the Empire shows so regular a vegetation.

In my first visit to this beautiful mountain some five years ago, when I was travelling around the gentle slope of the truncated cone, my attention was at once attracted to the dif-

ference between the forest zones on the different sides of the mountain. Then the question immediately arose what has caused this difference almost as symmetrical as Mt. Fuji itself?

The vegetation, as one may see from the base of the mountain, is roughly divided into six zones according to the altitude, viz. the prairie, the region of broad leaved trees, the ever-green conifer belt, the region of *Larix*, the stunted shrubbery, and the alpine stretches. But more broadly speaking, when only the sides of the mountain are considered, the regions of vegetation may be divided into two — northern and southern. On the southern side of the tree region, deciduous broad leaved trees predominate, but on the north the ever-green needle leaved trees are characteristic. The cause of this difference is an interesting subject for investigation.

In the course of my study, I have found that the different aspects of the tree regions are explainable by the differences of climate and soil according to altitude and exposure. In this paper, I have endeavoured also to enumerate all the plants found on the mountain and to arrange them in order according to regions, as explained in the map annexed.

In conclusion, I must express my hearty thanks to Prof. J. MATSUMURA, by whose special permission this work has been carried out. I am also indebted to Prof. M. MIYOSHI for his kindness to give me the privilege of reproducing some figures from his "Atlas of Japanese Vegetation"; to Dr. Y. SHIOZAWA by whose kindness I was able to secure all the data relating to the alternation of the forest regions; and to Mr. T. MAKINO who has kindly assisted me in determining the collections that I have made on the mountain. Nor should I forget to mention my obligations to Dr. T. OKADA who has liberally furnished me with all the meteorological data relating to the peak.

June 1907.

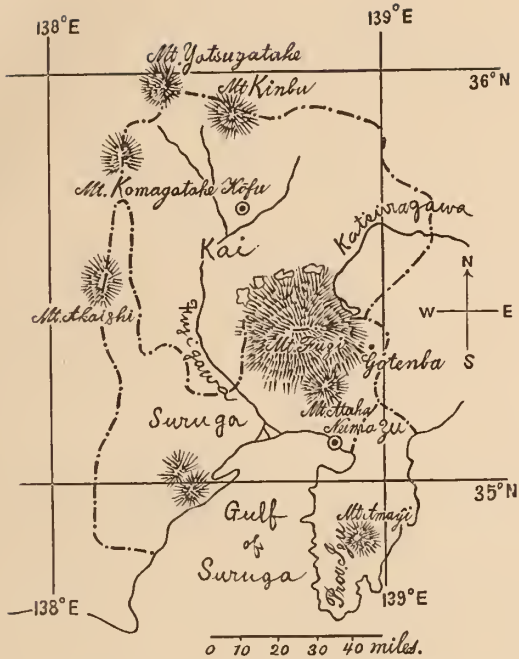


Fig. 1. Sketch-map of Mt. Fuji and its neighbouring peaks.
—·—·—·— Provincial boundaries.

I. PHYSIOGRAPHY.

As vegetation has a close relation to the physiography of its locality, we must before going into details pause to consider the geology and climate of Fujiyama. Further, in order to study the relation of the flora of one mountain to that of another, we must necessarily know the geological relation between them. This chapter, therefore, will be devoted to the consideration of geology of this mountain and the neighbouring ranges, so far as is needful for investigating this subject.

Mt. Fuji, rising from the broad plain between the Provinces of Kai and Suruga, is a well defined elevation. It is

situated so that the meridian of 138° 44′ East of Greenwich, and the parallel of 35°21′ North intersect near its summit. Attaining the height of 3778m. (approximately) above the sea level, this truncated cone adds a most graceful feature to the landscape of the Pacific coast. Its foot covers an extensive area, measuring 45 km. from N. to S. and 30 km. from E. to W. Combined with the elevations of the Myōkō volcanic group on the north, Mt. Yatsugatake in the middle, and far on the south Mts. Amagi and Izu-Shichitō,* it forms the Fuji volcanic chain, which divides the main-island into two parts. Among the volcanoes of this chain, Fujiyama, being the one formed most recently probably in the diluvian age, is thought to have the most recent vegetation.

It has Mt. Ataka at its very base, and Mt. Amagi some eighty miles to the south, while Mt. Kinbusen is on the north at a distance of about eighty miles. Further on, a hundred miles to the north-west, is Mt. Yatsugatake with Mt. Komagatake a little nearer, and Mt. Akaishi on the west at a distance of about eighty miles. All these mountains are supposed to have been already extinct, while Mt. Fuji was still active. And therefore, it is highly probable that all these elevations in the vicinity were crowned with rich vegetation while the young volcano was still bare of organic growth.

So much for the geology of the elevations in the vicinity. Turning now to the mountain itself, it has five lakes at its base, viz:—Yamanaka, Kawaguchi, Nishi, Shōji and Motosu. They are said with great probability to have been originally a semicircular lake skirting the base of the mountain. This lake was afterwards divided into five by the diminution of its water, and also by the intrusion of lava that flows from the volcano. These lakes give a great variety to the otherwise monotonous scenery of the basal slope, and especially on the north-western flank

* Seven islets near Prov. Izu.

where an extensive forest is found, owing to the underground water afforded by the lakes.

Although the mountain is entirely in a dormant stage, there is still observed some heat, 50°C in the rocks on the top,—an indication that the volcano has but recently ceased to be active. The inclination of the flank near the top is rather steep, measuring 34°–32°, then gradually becoming a more and more gentle declivity of 25°–17°, and at last most gently sloping league after league almost to a level. The shoulders of this volcanic cone are in all respects quite symmetrical, and its general outline is comparable to a logarithmic curve, so uniformly do the flanks slope in all directions.

The flanks are, as has been stated by Dr. T. HIRABAYASHI, all covered with lava broken into jaggy blocks, or invested with volcanic ashes. Generally speaking, the mountain is covered with lavas and cinders from the peak down to an elevation of 1500m., but the basal portion below is covered with tufas, sand and pebbles. It must be admitted however that there is a little local difference on the different sides, — for example, on the N. W. side the Aogigahara-lava occupies a very extensive area reaching down to an elevation of 1000m., while on the east the volcanic ashes and pebbles cover a broad area at the base and reach up as high as to elevation of 2500m.

Lavas are necessarily accompanied by scoriæ of various kinds. I may mention here that lava, when it consists of jaggy blocks, can absorb much water in its substance and is more likely to hold water upon its surface. When lava is thus broken into jaggy blocks, it is all the better for retaining water; because from a smooth plane surface water will run off rapidly; but with a rough surface, it has more chances of being retained. Not only has rough ground more power to hold water for the plants, but also it supplies the young seedlings with shelter sufficient to help their growth. But, if the lava consists of scoria, the case is a little different. Scoria is hard and glassy,

and it is rather difficult for plants to fasten their roots upon it even when there is a plentiful supply of water. Volcanic ashes or tufas can hold a considerable quantity of water; but an area covered with tufas is necessarily plane and smooth, and here in a heavy rainfall, the water is likely to run off from its surface. What makes the matter worse for plant-seedlings is that the area affords no place where plants can fasten their roots and is too flat to have any holes or shady places for the young plants. When strong and dry winds prevail, such ground at once loses all moisture and the plants find it difficult to grow. In this sense, in a surface covered with jagged blocks of lava, the plants can best find their rooting.

After stating so much, let us proceed to the consideration of the lavas of Mt. Fuji. According to Dr. T. HIRABAYASHI, some of the lavas belong to the eruption after the historical age, and therefore we are able to estimate their ages together with those of the vegetations upon them. There are seven streams of lava, each differing from the other, implying prehistorical and post-historical periods. They are as follows:— 1) the Ōsawa, 2) Mishima, 3) Ōmiya, 4) Karasuishi, 5) Yenkyō, 6) Aogigahara, and 7) Hōyé streams. The first four are prehistorical and the last three post-historical. All the lavas of this volcano are basic. The Yenkyō lava is said to have erupted in the year 880, the Aogigahara in the year 955, and the Hōyé lava in the year 1707.

Of all these lavas, the Aogigahara which stretches over the N.W. flank is the most porous and capable of supporting vegetation.* The other lavas are more or less dense and compact. The Hōyé lava consists of ashes or small particles of lava blocks, and is not fitted for plant growth. We, therefore, see the richest vegetation on the Aogigahara side and the poorest on the Hōyé side.

* The ground covered with this lava is especially fitted for the growth of conifers.

Pl. II. View of Mt. Fuji from Ukishima-numa. (Ukishima-swamp.)

The conifer region is seen quite dark below the treeless region clad with snow, and the region of deciduous broad leaved forests is seen less dark below the conifer region. (After a photograph; a little brush is put in by the author, in order to show the plant regions clear.)

As we have stated above, the distribution of the lava has a close relation to the development of the forest. Independent of this matter, however, there must be certain differences of plant

Fig. 2. Sketch-map of Mt. Fuji and its vicinities; showing the positions of meteorological stations at the base of Mt. Fuji.

formation caused by climate. The next chapter is, therefore, devoted to the climate of the mountain.

II. CLIMATE.

As Mt. Fuji lies in the monsoon region, it has a heavy precipitation in the summer, with clear weather in the winter. Accordingly, its vegetation up to the height of 1500m. is mostly summer green forest formation. Above that line, conifers are found predominating over deciduous trees. In this chapter, we shall try to examine the climatic character of the different sides of the mountain. We have five meteorological stations, varying in altitudes from 100m. to 1000m., and located on different sides of Mt. Fuji. For the present investigation, it is necessary to take into account only the observations made at the altitude of about 1000m.; for the forest formation begins at that elevation. The five stations are not all in the tree regions, but it is possible for us to calculate the missing data from the known readings made at the base stations.

The localities of the five stations are shown in the accompanying sketch. They are as follows: 1) the Shiraito station, situated S.W. of the peak; 2) the Shōji station, N.W.; 3) the Ōmiya station, due S.; 4) the Goten station, S.E.; 5) the Nakano* station almost due E.

The climatic elements which must be taken into consideration in investigating plant formation are: 1) **rainfall**; 2) **temperature**; 3) **humidity**; 4) **sunshine**; 5) **wind-direction**. Let us consider them one by one.

1) **Rainfall.** It is a well known fact that other things being equal, the greater the rainfall the better for the vegetation. The following table shows the average rainfall for five years observed at the five stations.

---

* Nakano is located very near Yamanaka in the accompanying sketch.

Tab. I.

Stations	Latitude	Longitude	Altitude	Years	Jan.	Feb.	Mar.	Apr.
Shiraito	35° 17′	138° 35′	484$_m$	1900–1904.	61.8	47.3	213.1	224.0
Ōmiya	35° 14′	138° 35′	150$_m$	1899–1904.	60.7	55.6	216.4	205.5
Goten	35° 18′	138° 55′	456$_m$	1900–1904.	81.8	34.4	144.9	244.0
Nakano (near Yamanaka)	35° 26′	138° 51′	986.4$_m$	1901–1905.	75.4	90.1	248.1	225.5
Shōji	35° 31′	138° 37′	936.7$_m$	1901–1905.	61.5	69.6	184.9	189.4

Stations	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
Shiraito	307.1	275.2	409.9	270.2	278.5	238.5	121.6	117.0	2564.2
Ōmiya	237.6	231.4	386.3	178.3	251.5	249.8	98.6	105.3	2277.0
Goten	233.4	236.5	376.6	182.0	250.1	207.2	117.0	96.1	2204.0
Nakano (near Yamanaka)	259.3	345.7	489.9	266.7	331.9	318.5	125.0	159.1	2935.2
Shōji	246.0	320.2	415.9	247.5	301.5	251.8	92.0	109.5	2489.8

Tab. I. Containing the latitudes, longitudes and altitudes of the stations, the years of the observations, and the mean annual and monthly rainfalls (in millimeters), for the five stations.

It is very desirable to know the precipitation of the 1000m. altidude, as the forest regions begin at that point. We all

know that the rainfall, in the case of a mountain, increases up to the altitude of 1000m. and then decreases above that line. We can approximately calculate the rainfall of a flank of a mountain at any altitude, if we but know the rate of increase of rainfall for each 100m. The stations at Shiraito and Ōmiya are almost in a line from the top of the mountain. And therefore the difference of rainfall observed at these two stations will tell us the rate of increase of rainfall due to the altitude. The rate of increase in every 100m. thus calculated is 72mm. in annual mean of rainfall. Applying this rate to each station, we calculate the annual mean rainfall of the five directions at an altitude of 1000m., which amounts are shown in the following table.

Tab. II.

Annual mean rainfall at the altitude of 1000m. on the Shiraito side.	2936 mm.
,, ,, Ōmiya side.	2889 ,,
,, ,, Goten side.	2596 ,,
,, ,, Nakano side.	2942 ,,
,, ,, Shōji side.	2534 ,,

In this table we see the Nakano side leads in the amount of rainfall, next come the Shiraito and Ōmiya sides, while the Goten and Shōji sides have the least. This climatic character, however, seems to have but slight significance in explaining the present vegetation; for vegetation does not depend so much upon rainfall, as it does upon the soil, ground water, and humidity, which will be considered later.

However great the rainfall, if it comes all at once and runs away very rapidly, it will favour growth far less than frequent light rains. So the frequency of the rains should be taken into consideration.

Tab. III.

Months / Stations	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
Shiraito	6	7	14	15	13	13	16	11	13	14	8	6	136
Ōmiya	5	6	13	12	13	13	13	5	10	11	6	4	111
Goten	5	5	14	12	12	10	14	6	11	12	8	5	114
Nakano	7	5	13	13	13	15	15	11	13	15	7	7	134
Shōji	6	6	12	14	14	17	16	13	14	14	8	7	141

Tab. III. Containing the average number of rainy days in each month, for the five years from 1901 to 1905 inclusive.

The figures of this table, being the result of observations made at different altitudes, do not give us any fair idea of the number of rainy days at the 1000m. altitude. We see, however, that these observations throw some light upon the investigation of the present plant-formation. The number of rainy days for Shiraito and Shōji are the greatest; hence they have the most abundant vegetation. Moreover, it may be urged that the Shiraito must have the most days of rain, for this station, notwithstanding its low elevation, has more rainy days than the Nakano station which lies almost at the altitude known to have the maximum precipitation. As will be shown afterwards, the most abundant growth of deciduous trees is found on the Shiraito side.

2) **Temperature.** The following table will give us the readings of the thermometers at the five stations. Here, however, we must consider the temperature at the altitude of 1000m., which temperature can be calculated from the known readings.

Tab. IV.

Stations	Years	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
Shiraito	1900-1904	6.3	6.3	9.3	13.9	17.9	21.0	23.4	26.5	23.4	18.3	12.9	8.4	15.6
Ōmiya	1899-1904	6.1	6.5	9.9	14.6	18.6	21.9	24.5	26.8	24.3	18.7	13.1	8.5	16.1
Goten.	1900-1904	3.2	3.9	7.4	13.2	16.5	20.7	22.6	26.0	23.3	16.9	11.1	6.0	14.2
Nakano	1900-1905	0.9	0.3	4.1	9.8	13.6	18.1	20.9	22.3	19.3	13.5	8.4	3.3	11.2
Shōji	1900-1905	0.3	0.6	4.4	9.8	13.8	18.3	21.2	22.3	20.0	13.6	7.6	3.0	11.3

Tab. IV. Containing the mean annual and monthly temperature (C.) for five stations; observations made daily at 10 A.M.)

From this table, we can calculate approximately the temperature at the height of 1000m. on the respective sides represented by the five stations. In making the calculation, it is necessary to know the gradient of temperature on Mt. Fuji; but owing to the scarcity of data, we are not able to obtain any reliable value of the gradient on the mountain. Fortunately, however, the gradient of temperature up to the 1000m. elevation is known with great approximity from observations made for long years on Mt. Tsukuba. As both mountains are situated on the Pacific coast, and stand near each other, the results obtained for Tsukuba will hold good for the basal portion of Mt. Fuji.

The following figures obtained by Dr. T. OKADA are given as the gradient of air temperature per 100m. on Mt. Tsukuba.

Tab. V.

Months	Jan.	Feb	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
Gradient	0.49	0.52	0.55	0.60	0.60	0.57	0.57	0.57	0.55	0.55	0.43	0.43	0.54

From Tables IV. and V., we obtain the following table showing the mean temperature for month and year at the 1000m. altitude on the respective sides of the mountain.

Tab. VI.

Months / Sides	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
1000m. altitude on the Shiraito side.	3.8	3.6	6.5	10.8	14.4	18.1	20.5	23.6	20.6	15.5	10.7	6.2	12.8
„ „ Ōmiya side.	1.9	2.1	5.1	9.5	13.5	17.1	19.7	22.0	19.5	13.9	4.3	4.8	11.5
„ „ Goten side.	0.5	1.1	4.4	9.9	13.2	17.6	19.5	22.9	20.3	13.9	8.8	3.7	11.2
„ „ Nakano side.	0.9	0.3	4.1	9.8	13.6	18.1	20.9	22.3	19.3	13.5	8.4	3.3	11.2
„ „ Shōji side.	0.3	0.3	4.1	9.4	13.4	17.9	20.8	21.9	19.7	13.3	7.3	2.7	11.0

On looking at this table, we see that the temperature is the highest on the Shiraito side and next highest on the Ōmiya side. Other things being equal, the higher the temperature, the better plants grow. This is clearly shown in the plant formation of Mt. Fuji. On the Shiraito side, the forest is the richest, and the Ōmiya side comes next. On the Shōji side, the temperature is the lowest, but the forest is there favoured by the underground water due to the adjacent lake, and still more by the porous lava which covers all the ground*. On the Gotemba side, the temperature is comparatively high; but this advantage being offset by the poor soil, we have here the poorest vegetation.

3) **Humidity.** This most subtle thing plays an important rôle in plant formation. To my regret, we have no observations

* The case that the forest of conifers is favoured by porous lavas which cover the ground is everywhere met with in Japan. In Mt. Maccarinupri, we find conifer-forests flourish on lavas, while deciduous trees, on the ground covered by tufas and ashes.

of humidity at the basal stations. We have, however, one station at Numadzu on the base of the southern flank and another station at Kōfu on the north, where observations on humidity are made. The observations made at these two stations will answer for the present investigation. We may approximately calculate the absolute humidity at the altitude of 1000m. on the northern flank of Mt. Fuji from that of the Kōfu station; and the absolute humidity of the southern flank, from that of the Numadzu station. HANN's formula will answer well for this purpose.

Formula I. $e_h = e_0 10^{-\frac{h}{6500}}$ $\therefore \log e_h = \log e_0 - \frac{h}{6500}$

where e_h denotes the vapour tension at any altitude and e_0 denotes the known vapour tension observed at the base station of a mountain; h represents the difference between the height of a point and that of the base station, measured in meters.

Let us require the tension at the altitude of 1000m. on both flanks, north and south. The following table shows the mean annual and monthly temperatures for the two stations; the observations cover the space of five years, 1896–1900 inclusive, and the readings are mede six times a day.

Tab. VII. (Temperature.)

Months / Stations	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
Kōfu	1.1	2.5	6.1	12.48	17.16	20.88	24.58	25.72	21.32	14.38	9.18	3.52	13.27
Numadzu	5.3	6.7	8.3	13.5	17.8	20.7	24.4	26.2	22.4	16.7	12.3	7.7	15.1

Calc. I. $\begin{cases} \text{Altitude of Kōfu} = 269\text{m.} & \therefore h \text{ of the northern flank} \\ & = 1000\text{m} - 269\text{m} = 731\text{m.} \\ \text{,, of Numadzu} = 10\text{m.} & \therefore h \text{ of the southern flank} \\ & = 1000\text{m} - 10\text{m} = 990\text{m.} \end{cases}$

From Tables VII., V. and Calc. I., we get the following table for the mean monthly and annual temperatures at the altitude of 1000m. on both northern and southern flanks.

Tab. VIII. (Temperature.)

Sides \ Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
Altitude of 1000m. north.	-2.48	-1.3	2.1	8.1	12.8	17.2	20.4	21.6	17.3	10.4	6.0	0.4	9.3
Altitude of 1000m. south.	0.4	1.6	2.8	7.6	11.9	15.1	18.8	20.5	16.9	11.2	8.0	3.4	9.7

The maximum tensions E of the above temperatures are as follows:

Tab. IX. (Maximum tension = E.)

Sides \ Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
E at the altitude of 1000m. on the north.	3.81	4.16	5.31	8.05	10.99	14.12	17.80	19.16	14.67	9.39	6.97	4.70	8.72
E at the altitude of 1000m. on the south.	4.70	5.12	5.58	7.78	10.36	12.76	16.12	17.91	14.30	9.9	7.99	5.82	8.96

The vapour tensions e_o at the two basal stations are shown in the following table. The observations cover the space of five years, 1896–1900 inclusive; and the figures are the mean of the readings made six times a day.

Tab. X. (Vapour tension e_o.)

Stations \ Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
Kōfu	3.5	3.74	4.78	7.82	10.38	13.32	17.88	19.7	15.92	9.8	6.68	4.2	9.84
Numadzu	4.44	4.50	5.70	8.62	11.38	14.28	18.24	20.04	16.24	10.70	7.96	5.26	10.62

From Calc. I., Tab. X. and Formula I, we get the following table showing the vapour tensions e_h at the altitude of 1000m. on both northern and southern flanks.

Tab. XI. (Vapour tension e_h.)

Months / Sides	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
altitude of 1000m. on the north.	2.7	2.9	3.7	6.0	8.0	10.3	13.82	15.20	12.27	7.56	5.17	3.24	7.56
altitude of 1000m. on the south.	3.1	3.2	4.0	6.1	8.0	10.0	12.8	14.1	16.4	7.5	5.6	3.7	7.4

It is not vapour tension that plays an important part in the formation of forest; but it is saturation-deficit which is necessary and is the main cause in making forest.

From Tables IX and XI, we get the following table showing saturation-deficit E—e_h on both flanks.

Tab. XII. (Saturation-deficit E-e_h.)

Months / Sides	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
1000m. altitude on the north.	1.01	1.26	1.61	2.05	2.99	3.82	3.39	3.96	2.4	1.83	1.8	1.46	1.16
1000m. altitude on the south.	1.6	1.9	1.58	1.68	2.36	2.76	3.32	3.81	2.9	2 4	2.39	2.12	1.56

Here we see in this table that, in January, February, September, October, November and December, i.e. in the so-called non-growing season, the southern flank is much drier than the northern; and contrariwise in the spring and summer, i.e. in the growing season. This difference of humidity clearly shows the difference of the vegetation of the two sides.

Fig. 3. View of Mt. Fuji seen from Shinshū. (N. E. side.) (after a phot.)

We have previously stated that the vegetation-regions of Mt. Fuji may be broadly divided into two according to side,—northern and southern. On the north, the ever-green conifers predominate, while on the south there is a most luxuriant growth of deciduous, broad-leaved trees. On the south, the air is dry in the winter, that does no harm to the deciduous trees. In the so-called growing season, the leaves of deciduous trees all come out, and it is rather dangerous for the trees when the air is dry, for they have such a broad surface of leaves for evaporation. In the winter, they have no leaves and, therefore, no surface for evaporation. In short, deciduous trees do not require moist air in the winter, but do in the spring and summer. In other words, deciduous trees have no fear of being dried up in the winter, for they have no leaves for transpiration; but in the summer when all their leaves are out, they are in great danger of losing two much water, if the air is dry. Therefore, deciduous trees can do well in a region where the air is drier in the

winter, and is moister in the summer. This, we see in Tab. XII., is the condition of the southern flank of Mt. Fuji.

In Tab. XII., we also see that, in the so-called non-growing season, i.e. in the winter, the air on the north side is rather humid, but in the spring and summer the air is comparatively dry. The ever-green conifers are as susceptible to a code of humidity in winter as in summer. But in the growing season, they have comparatively a smaller leaf-area for evaporation than the deciduous broad-leaved trees. They are, therefore, less in danger than the deciduous trees if the air is dry during the growing season. In short, the conifers can stand comparatively dry air in the growing season, but they can not stand it in winter. Therefore, the conifers will do well in a region where the air is comparatively moist in winter, and dry in spring and summer. This, as we see in Tab. XII., is the case with the region of the northern flank of Mt. Fuji.

As we have already stated, the temperature and rainfall can give but a faint explanation of the difference of the features of the forest-regions on the different sides. But a careful examination of the effects of humidity will prove it a most important reason for the differences found on the various flanks.

4) **Sunshine.** Lastly we shall consider the difference of the duration of sunshine on the different sides. The following table shows the possible duration of sunshine on both sides, granting that the observations at the Kofu station may answer for those of the northern side of Mt. Fuji, and the observations at the Numadzu station, those of the southern side of the mountain.

Tab. XIII.

Months / Sides	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
Kōfu, northern side.	311	305	370	392	435	434	442	416	370	348	308	301	4432
Numadzu, southern side.	312	306	370	391	433	432	440	415	370	346	309	304	4431

The following table shows the actual duration of sunshine at the two stations.

Tab. XIV.

Months / Sides	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug	Sep.	Oct.	Nov.	Dec.	Ann'l
Kōfu, northern side.	180	202	202	185	210	195	154	222	171	155	173	198	2246
Numadzu, southern side.	185	187	186	190	226	192	191	235	180	172	181	203	2306

Ratios of the possible duration to actual duration on both sides are shown in the following table.

Tab. XV.

Months / Sides	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
Kōfu, northern side.	58	66	55	47	49	45	35	53	46	45	56	66	52
Numadzu, southern side.	59	61	50	48	48	44	45	56	48	49	59	67	53

Upon considering the foregoing tables we find that through the year the weather is better on the southern side than on the northern. But it may be mentioned that in February and March the weather is better on the northern side than on the southern. This fact will at least favour conifers which have ever-green leaves even in the cold winter and have power to do starch-building even then; but will not benefit deciduous trees which have no leaves to enjoy the sunshine.

4) **Wind-direction.** It is true that the wind plays a somewhat important part in making forest. The fact is the gentler the wind the better for the forest. So, the velocity of the wind is the important point for us. We have, however, no information about the wind velocity at the base stations of the mountain.

Setting it aside, therefore, let us proceed to examine the direction of the wind.

As the wind is a means of conveying plant seeds to a distance, the discussion of the wind-direction will throw some light upon the questions whence and how plants were first brought to this volcano.

The following table shows the wind-direction at the different stations.

Tab. XVI.

Stations \ Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann'l
Shiraito	N	N	N	SE	SE	SE	SE	SE	N	N	N	N	SE
Ōmiya	S	S	S	S	S	S	S	S	S	S	S	S	S
Goten	S	S	S	S	S	S	S	S	S	S	S	S	S
Nakano	W	W	SW	S	S	S	S	S	S	S	S	SW	SW
Shōji	N	N	SE	SE	SE	SE	SE	SE	S	S	S	N	SE

Tab. XVI. Showing the wind-directions at the different stations.

As the mountain lies in the so-called monsoon region, the north wind prevails in the winter and the south wind in the summer. But the wind at the region under consideration is somewhat changed owing to the high mountain. Thus the prevailing wind throughout the year is the south wind.

As we have previously stated, the mountain must have been entirely bare, until it entered the extinct stage. After having become ready to give plants their stands, it must have received first some inhabitants from the neighbouring mountains. I have come on this occasion to consider that the wind is the only means of conveying plant-seeds to this mountain. The wind must,

therefore, play an important rolé in making up the flora of Mt. Fuji.

Here we must not forget to mention that in the middle layer of the air the constant wind is that from the south-west. In the case of Mt. Fuji, therefore, at the 2500m. elevation, the south-westerly wind prevails. It is only from southern mountains that the peak could have received alpine plants, and looking on the map we see that there is no high mountain on the south. In other words, there is no high elevation on the south to contribute alpine elements to Mt. Fuji's vegetation. This fact must go far towards explaining why the mountain is so poor in the alpine elements, as will be seen in the list. Such a plant as *pinus pumila* so common in the alpine regions in Japan is entirely wanting on this mountain.

III. GENERAL ASPECT OF THE VEGETATION.

In the preceding chapters, we have considered the physiography, geology and climate, of Mt. Fuji as far as is necessary for the discussion of the plant formation. In this chapter, we shall try to dwell upon the formation in general,—not to investigate the vegetation zone after zone, but to take a general glance over all the different parts of the mountain. In order to attain this end, it will be best to divide the mountain into four parts as shown in the accompanying sketch.

First, we shall consider these parts one by one; next we shall combine all parts into one in order to gain a general conception of the vegetation on the whole. Let us take Part I. for the first discussion.

a) Plant-formation in Part I.

On glancing over the volcano from the Ōmiya plain, at a distance of five miles from the base, we shall have a clear view of the southern flank with its abundant growth. The

arrangement of the vegetation according to the height is seen most clearly on this side.

Fig. 4. Sketch-map of Mt. Fuji; plant regions are divided to four parts.

As is shown in Plate I., the plant regions of the mountain are displayed very clearly by the different coloration of the formations; the truncated top, clad with pure white snow, or sometimes crowned with clouds; the hazy dark green region of the conifer-forest in the middle; the light red zone of the deciduous forest a little lower; then light brown to the base, and mile after mile of prairie-formation. The alpine stretches, shrubbery growth, and *Larix*-formation, which lie above the conifer-forest, are but faintly seen. The deciduous forest enjoys the most luxuriant growth on this side.

As there is sufficient heat and considerable rainfall on this side, cultivation is carried on here and there even to the edge of the deciduous growth. The prairie-land on this side is said to have been formerly clad with a dense forest. It is known from the re-

cords that in former times clearings were made here, and more emphatically is this told by the roots or stumps buried in the soil.

Some portions in this part have been accurately surveyed by the Bureau of the Imperial Preserves for the first process of the afforestation now being carried out here. Through the kindness of Dr. Y. SHIOZAWA, expert of the Bureau, I was able to secure all the data with which I express numerically the degrees of the alternation of the forest-regions. The surveyed portions were divided into a number of parts, and the deciduous trees and conifers contained in some parts marked with asterisks were actually counted. The supply of timber contained in those parts is finally mentioned. This supply will approximately show the density of the forests.

The following tables show the relative frequency of both deciduous and coniferous trees in each part. The positions and the altitudes of the parts are given in the accompanying plate.

Tab. XVII.

Sect. I.

Tab. XVII. Showing the relative frequency of both deciduous and coniferous trees in Sect. I in the accompanying plate.

No. \ Species	Larix	Picea and Abies	Deciduous broad leaved tree	Zelkowa acuminata	No. \ Species	Larix	Picea and Abies	Deciduous broad leaved tree	Zelkowa acuminata
1		25%	75%		16		39%	57%	4%
2		23%	77%		17		28%	72%	
3		24%	74%		18		30%	70%	
4		35%	65%		19		18%	68%	14%
5		29%	71%		20		20%	71%	9%
6		29%	71%		21		20%	70%	10%
7		50%	50%		22		23%	72%	5%
8		33%	67%		23		29%	71%	
9		45%	55%		24		32%	68%	
10		34%	66%		25		21%	79%	
11		27%	73%		26		25%	75%	
12		29%	71%	4%	27		27%	63%	10%
13		21%	79%		28		24%	67%	9%
14		38%	58%	5%	29		20%	80%	
15		41%	54%						

Tab. XVIII.

Sect. II.

Tab. XVIII. Showing the relative frequency of both deciduous and coniferous trees in Sect. II. in the accompanying plate.

No. / Species	Larix	Abies, Tsuga	Abies, Tsuga and Picea	Deciduous broad leaved tree	Tsuga, Picea	No. / Species	Larix.	Abies, Tsuga	Abies Tsuga and Picea	Deciduous broad leaved tree	Tsuga, Picea
1	100%					32				100%	
2	100%					33				100%	
3	68%	31.6%		0.2%		34				100%	
4	45%	50%		5%		35		20%		80%	
5	2%		98%			36		8%		92%	
6			*96%	4%		37		8%		92%	
7	47%	41%		12%		38		43%		57%	
8	52%	44%		4%		39		27%		73%	
9	49%	49%		2%		40		15%		85%	
10		100%				41				100%	
11			100%			42		9%		91%	
12			*99%	1%		43				100%	
13	10%	80%		1%		44				100%	
14	9%	80%		11%		45				100%	
15		84%		16%		46		13%		87%	
16		65%		35%		47		16%		84%	
17				22%	78%	48		22%		78%	
18				20%	78%	49		19%		81%	
19		74%		26%		50		2%		98%	
20		78%		22%		51				100%	
21		81%		19%		52				100%	
22		62%		38%		53				100%	
23		27%		73%		54				100%	
24				100%		55		5%		95%	
25		52%		48%		56		10%		90%	
26		24%		76%		57				100%	
27		36%		64%		58				100%	
28		36%		64%		59				100%	
29		29%		71%		60				100%	
30		34%		66%		61				100%	
31		39%		61%		62				100%	

* including a small quantity of *Larix* in it.

Pl. III. Sketch-map of the southern flank of Mt. Fuji.

Sect. II. (Continued.)

Nos. / Species	Larix.	Abies, Tsuga.	Abies, Tsuga and Picea.	Deciduous broad leaved trees.	Nos. / Species	Larix.	Abies, Tsuga.	Abies, Tsuga and Picea.	Deciduous broad leaved trees.
63				100%	75				100%
64				100%	76				100%
66				100%	77				100%
67				100%	78				100%
68				100%	79				100%
69				100%	80				100%
70				100%	81				100%
71				100%	82				100%
72				100%	83				100%
73				100%	84				100%
74				100%					

Fig. 5. Pure stand of *Larix leptolepis* in No. 7 in Sect. III. (Photographed by the author).

Tab. XIX.

Sect. III.

Nos.	Species	Larix.	Abies, Tsuga.	Abies, Tsuga and Picea.	Abies.	Deciduous broad leaved trees.	Nos.	Species	Larix.	Abies, Tsuga.	Abies, Tsuga and Picea.	Abies.	Deciduous broad leaved trees.
1		100%					22						100%
2					100%		23						100%
3		6%			94%		24						100%
4					26%	74%	25						100%
5					100%		26					50%	50%
6		100%					27						100%
7		100%					28						100%
8						100%	29						100%
9			55%			45%	30						100%
10						100%	31						100%
11		100%					32						100%
12						100%	33						100%
13						100%	34						100%
14			52%			48%	35						100%
15						100%	36						100%
16						100%	37						100%
17						100%	38						100%
18						100%	39						100%
19						100%	40						100%
20					29%	71%	41						100%
21						100%	42						100%

Tab. XIX. Showing the relative frequency of both deciduous and coniferous trees in Sect. III. in the accompanying plate.

Fig. 6. Deciduous tree-forest in No. 22, in Sect. III. *Acer pictum* THUNB, *Stewartia monadelpha* S. et Z. and other trees are represented in the figure. (Photographed by the author.)

It is very interesting to arrange the parts marked with asterisks according to height, and to compare the density of the forest at the different altitudes. (cf. P. 24.)

As Sect. II. of this Part is the most typical on this side, I shall take this section for comparison.

Tab. XX.

Sect. II. (*Forest-growth.*)

Alt.					mean.
2250m.	(No. 6) 437				437
2000m.	(No. 7) 371	(No. 8) 406	(No. 16) 466	(No. 10) 830	516
1500m.	No. 42) 440	(No. 35) 443	(No. 38) 222	(No. 57) 266	343
1240m.	No. 69 167				167

The figures show timber-supply in 1 square hm. measured in fm.

In this table, we see that the forest-zone, which extends from 2500m. downwards, attains its maximum growth at the altitude of 2000m., then decreasing gradually, comes to an end at the boundary of the forest, at an altitude of about 1000m.

Now considering the Conifers only, the following table shows the density of the conifer-forest according to height.

Tab. XXI.

Sect. II. (*Conifer-forest.*)

Alt.					Mean
2250m.	(No. 6) 425				425fm.
2000m.	(No. 7) 331	(No. 8) 406	(No. 16) 405	(No. 10) 830	495fm.
1500m.	(No. 42) 272	(No. 35) 68	(No. 38) 70	(No. 57) 0	102fm.
1250m.	(No. 69) 0				0
1000m.					0

In this table, we see that the Conifer-formation, which extends from 2500 m. downwards, attains its most luxuriant growth at an altitude of 2000m., then decreasing gradually, comes to an end at the 1250m. altitude.

The density of the deciduous forest according to height is shown in the following table.

Pl. IV. View of Mt. Fuji seen from Lake Motosu, showing the plant regions found partly in Part IV. and partly in Part I. Conifer, deciduous tree, and prairie, regions are clearly seen. (After a sketch by the author).

Tab. XXII.

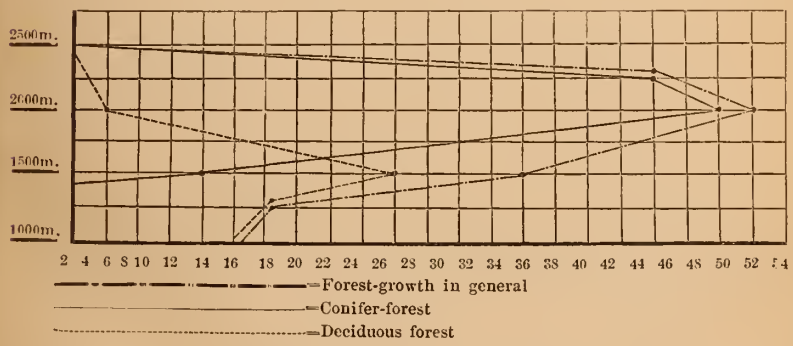
Set. II. (*Deciduous forest*)

Alt.					Mean
2250m.	(No. 6) 12				12
2000m.	(No. 7) 39	(No. 8) 0	(No. 16) 61	(No. 10) 0	25
1500m.	(No. 42) 168	(No. 35 374	(No. 38) 153	No. 57) 266	240
1250m.	(No. 69) 167				167

In this table, we see that the deciduous forest which first comes in the shrubbery-formation at the high altitude of 2500m., increasing gradually, attains its maximum growth at the altitude of 1500m., then decreasing gradually, comes down to its boundary at the 1000m. altitude.

The following table shows the density of the forest-growth in general, and that of the coniferous and deciduous forest separately, according to the height.

Tab. XXIII.



b) *Plant-formation in Part II.*

Moving eastwards, let us discuss the formation of Part II. This is a rather limited area bordered by Mt. Ashitaka on the

south-west, and defined by the Kagosaka range on the north-east. From the Gotemba plain, we have a full view of this part. In the spring, when the snow still remains on the peak, the dark green belt of the pine-forest stands in clear relief against the back ground of the pure white snow. The belt is thick on the north, but becomes thinner and broader on the south, flanking downwards to the middle of the mountain, then giving way to the prairie which stretches far and wide to the fertile plain of Gotemba.

As is shown in the annexed map, the vegetation is the most scanty on this side. The treeless region, shown by the snow cap, stretches down as low as to about the 1200m. altitude, then giving way to Picea- or Abies-, but more especially to the red pine-, formation which is, however, not dense as in the case of other Parts, but very thin in every respect. This scarcity of vegetation is caused by the eruption of Hōyé which took place but recently, the ground being as yet not ready to produce a dense forest there.

The north-eastern portion of this Part (Sect. IV. in the accompanying sketch-map) was surveyed in connection with Part I. The following table will show the relative frequency of *Larix*, *Pinus densiflora*, and deciduous trees.

Tab. XXIV.

Sect. IV.

Species / Nos.	Larix	Pinus densiflora,	Deciduous broad leaved trees	Species / Nos.	Larix	Pinus densiflora,	Deciduous broad leaved trees
1	100%			6			100%
2	100%			7	27%		73%
3	100%			8	27%		73%
4	100%			9	100%		
5	55%		45%	10	100%		

Sect. IV. (Continued.)

Species Nos.	Larix.	Pinus densiflora.	Deciduous broad leaved trees.	Species Nos.	Larix.	Pinus densiflora.	Deciduous broad leaved trees.
11	100%			21		100%	
12	100%			22		100%	
13	67%	33%		23		100%	
14		100%		24		100%	
15	29%	71%		25		100%	
16		100%		26		100%	
17		100%		27		100%	
18		100%		28		100%	
19		100%		29		100%	
20		100%					

The following table will show the density of the forest-growth in general according to height.

Tab. XXV.

Sect. IV. (Forest-Growth)

Alt.			Mean
1800m.	(No. 2) 132		132fm.
1500m.	(No. 5) 131		131fm.
1300m.	(No. 7) 49		49fm.
1060m.	(No. 17) 68	(No. 18) 63	62fm.
940m.	(No. 24) 177		177fm.
840m.	0		0

As we see in the annexed map, the forest-growth comes into existence at an altitude of 2200m. and gradually increasing

as it descends, attains its most luxuriant growth at the 940m. altitude, then decreasing gradually, comes to an end at an altitude of 840m.

The density of the *Larix*-growth is shown in the following table.

Tab. XXVI.

Sect. IV. (*Larix leptolepis*)

Alt.			Mean
1800m.	(No. 2) 132		132
1500m.	(No. 5) 83		83
1300m.	(No. 7) 15		15
1060m.	(No. 17) 7	(No. 18) 4	5
940m.	(No. 24) 0.3		0.3

We see in this table that the *Larix*, which extends from an altitude of 2200m. downwards, attains its maximum growth at the height of 1800m., then gradually decreasing, comes almost to an end at an altitude of 940m.

The density of the growth of *Pinus densiflora* which stretches over this section is shown in the following table.

Tab. XXVII.

Sect. IV. (*Pinus densiflora*)

Altitudes			Mean
1800m.	(No. 21) 0		0
1500m.	(No. 5) 0		0
1300m.	(No. 7) 0		0
1060m.	(No. 17) 55	(No. 18) 31	53
940m.	(No. 24) 160		160

In this table, we see that *Pinus densiflora* which extends from 1300 m. downwards, attains its most luxuriant growth at an altitude of 970 m.

The density of the growth of the deciduous trees is as follows: —

Tab. XXVIII.

Sect. IV. (*Deciduous trees*)

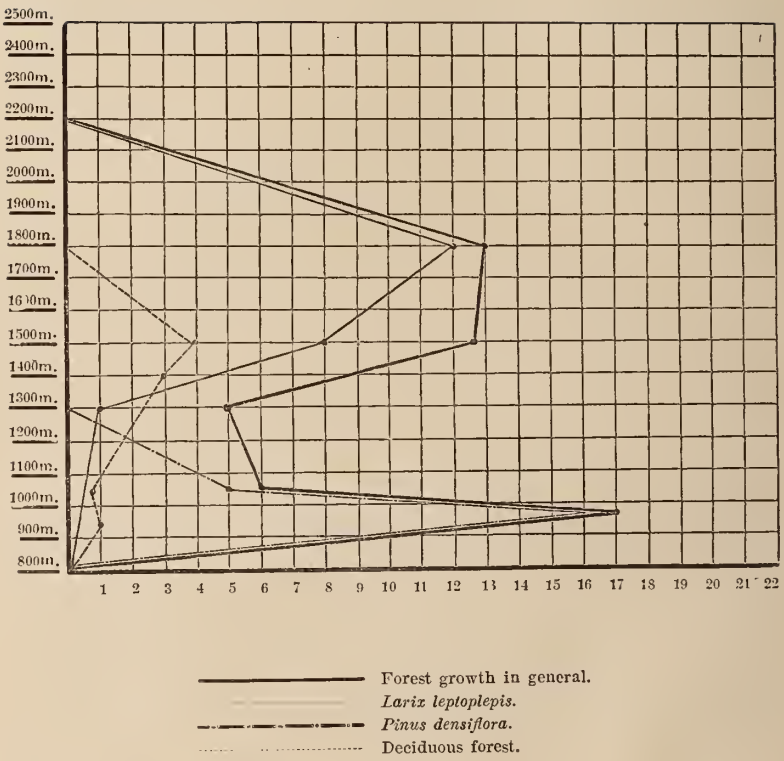
Altitudes			Mean
1800m.	(No. 2) 0		0
1500m.	(No. 5) 46		46
1300m.	(No. 7) 37		37
1060m.	(No. 17) 6	(No. 18) 8	7
940m.	(No. 24) 17		17

The figures show timber-supply in 1 square hm. measured in 1 fm.

The maximum growth of the deciduous trees is seen at an altitude of 1500 m., but does not extend to any higher than an altitude of 1800 m.

The following table will show the density of the forest growth in general and that of the *Larix*, *Pinus* and deciduous trees, separately.

Tab. XXIX.



c) *Plant-formation of Part III.*

Now passing on to the north side, let us study Part III. The flank is generally like Part II., but has a far more developed forest-formation in the middle. The prairie is equally broad and extensive, not well suited to cultivation. This monotonous scenery of the prairie-formation is broken by lava-streams which show themselves here and there by the forests upon them.

Lakes are found on this side with water-plants such as *Potamogeton* and *Najas*. The general view of this grand flank is best obtained from the top of the Misaka pass. The colored plate annexed

Fig. 7. *Picea hondoensis* MAYR, with *Usnea longissima* ACH., about 1650 m. above the sea. (Yoshida side). (From the Atlas of Japanese Vegetation, by permission of Prof. M. MIYOSHI.).

showing the northern vegetation was made from a sketch by myself. It is a glorious sight to see the truncated cone, late in the spring when the snow covers the peak above, and the prairie below, but leaves the green of the pine-forest doubly dark against the pure white ground of snow. The deciduous tree-formation is on this

Fig. 8. Margin of the coniferous forest on the north side of the mountain. (Yoshida side).

side but faintly represented. The only vegetation distinguishable in the distance is the coniferous formation which surrounds the cone.

d.) Plant-formation of Part IV.

Turning our attention to the north-west side, let us consider the formation of Part IV. As is shown in the map annexed, the coniferous formation has here its most luxuriant growth. The Conifers stretch from the altitude of 2500 m. almost to the base. The deciduous forest is very poor and the prairie covers but a small area. A bird's eye view from the top of the Konno pass shows this part clad with ever-green conifers stretching like a level sea mile after mile of dark purple broken only by the mountain-range beyond. Broad leaved trees make patches here and there among the conifers, but are too scanty to produce any formation whatever. This coniferous region is called the "Aogi-

gahara"—the plateau of the ever-green trees. As we have previously explained, this beautiful formation is caused by the Aogigahara lava and the underground water supplied by the lakes.

Fig. 9. View of the north-western slope of the mountain, from Lake Shōji; the dark band at the base of the mountain is the Aogigahara Conifer-forest. (Photographed by the author).

Going further to the south-west through the Conifer-forest, we come down to the height of 1248 m. of Part I., where the formation of an immense deciduous forest opens before our eyes.

Thus, having completed our circuit of the mountain, let us consider the whole vegetation, combining the parts which we have discussed separately Generally speaking, the formations are found to be more developed on the south side than on the north. Moreover, the deciduous forest predominates on the south, while on the north the Conifer-forest attains its most luxuriant growth. This difference of formation, as has been previously shown, is due to the physiography of the mountain on its different sides.

So much for the general aspect of the plant formation of

Mt. Fuji. The next chapter will be devoted to the consideration of the plant-regions zone by zone.

IV. ZONATION OF THE PLANT-REGIONS.

Climbing up through the vegetation of Mt. Fuji, we find that there are generally six regions according to altitude. They are 1) prairie*, 2) deciduous forest, 3) ever-green Conifers 4) *Larix*-region 5) *Salix-Alnus*-region and 6) alpine stretches. The deciduous forest is formed most abundantly on the south, but very scantily on the north and is likely to escape one's attention from a distance. The prairie-formation occupies a very spacious area on

Fig. 10. Prairie-formation on the Gotemba side. (Photographed by the author.).

the south-east, while on the north-west, it is covered by the lower stretches of the Conifer-forest. Excepting these two small differences, the other formations are so equally developed on every side that they make nearly complete zones around the cone. The

* The term prairie is here used in the sense of grass-region.

local differences of these zones are shown in the map annexed. In this chapter we shall try to examine these regions one by one.

a) *Prairie-Region* (*Basal region.*)

This region mostly covers the gentle slope of the basal portion of the mountain. It is found on almost all sides, except the north-west, where the immense broad Conifer-forest stretches down almost to the base of the mountain.

The upper limitation of this low region is made very irregular by the intrusion of the forest-formation downwards. On the north-west side this boundary comes down as low as to about the 1000 m. altitude but on the south-east side, it goes up as high as to 1500 m. On the due south, it comes down to the 1000 m. line. On the north-east side, i.e. in Part III, there is seen the greatest extent of the prairie-formation. The upper limitation of this region on this flank lies at 1500 m. Two streams of lava crowned by the forest come down to the altitude of 1000 m. This undulating prairie is altogether monotonous broken only by the valleys which run into one another in their zigzag courses. Here and there tree-patches are seen along the streams. This side is especially suitable for the red pines, and they form thin forests which are in one part naturally made, but in another, formed by afforestation. Here on this side, I must not forget to mention, is the *Picea*-formation which is found quite isolated near lake Yamanaka. (cf. Pl. V.).

As we have already stated, the forest-formation regularly coincides with the lava-stream, that is clearly seen in the case of this *Picea*-formation.

Glancing at the geological map of the mountain, we see that on the north-east flank, a lava stream has flowed from the top down through the basal slope and has extended to the western extremity of lake Yamanaka. This stream is clearly traced by the forest-patches here and there upon it; for this

Fig. 11. Distant view of the pure stand of *Picea polita* near Lake Yamanaka; the foreground shows a cultivation of *Morus alba* LINN. (Photographed by the author).

Picea-formation is, after all, nothing but one of the forest-patches which flourish upon the porous lava of the stream.

Travelling along the base of the mountain on the north flank, one can not miss the noble forest of dark, green Conifers which extend over a distance of 2000 m., with a breadth of 1000 m. When I was journeying along this side, my attention was at once called to this great forest. On examining this secluded region, I found, to my astonishment, that it consists of a pure stand of *Picea polita*. This species is not rare on this mountain at rather high elevations, mixed with *Abies bicolor* and *Tsuga Sieboldi*. But to find its pure stand, so much broader than is seen elsewhere in the Empire, is something more than surprising.

The ground of this formation is all formed by large blocks of lava which are very porous in their structure, and very jagged in their surface. These characters of the lava have a very important relation to the forest-formation upon it. Moreover, underground water is plentifully supplied here by the adjacent lake. The Katsuragawa, an outlet of the lake, flows through this area of lava. Nothing is here wanting to make a luxuriant

Fig. 12. *Picea polita* in the pure stand near Lake Yamanaka. (Photographed by the author).

growth. Towards the end of this beautiful formation, the forest becomes thinner and thinner until it gives way to the stretches of dwarf red pines. The accompanying photograph will give some idea of this pure stand.

We have one more forest-formation pushing down to this side of the prairie region. Looking at the northern area a little above, we see a stream of the Kenmarubi lava which is crowned, in the upper, with a Conifer forest, composed of *Picea* and *Abies*

and in the lower part, with young red pine. This forest is not so dense as that on the side of lake Yamanaka owing to the lack of the underground water. (cf. Map.)

On the south-west side, the Aogigahara lava comes down almost to the base of the mountain, and being nourished by the underground water, is covered by the dense coniferous forest of *Picea*, *Tsuga* and *Abies*.

Fig. 13. The Aogigahara forest at Shoji lake; the forest of the lake-side is seen in the back ground. (Photographed by the author).

Generally speaking, all parts of the prairie-region have nearly the same plants. But when we consider the patches of forest which are found isolated in the prairie, some differences may be observed. On the southern flank, some deciduous broad trees come down into the prairie making patches here and there mostly along the valley and give some variety to the monotonous scenery on this side ; but on the northern flank, red pines play the part that the broad leaved trees take on the south. On the south, there is no group of pines on the prairie, nor is it likely that any

existed there in former times; for there is no evidence of one even in the relics buried in the soil. The red pine, therefore, does not seem to be suited to the south side, while the broad leaved trees grow better on this side. This fact plainly shows us that the southern prairie-side has sufficient temperature and humidity to maintain the broad leaved trees in the growing season, while the northern prairie-side has not. This is easily explainable by the climatic conditions of the different sides which we have already alluded to.

Fig. 14. *Cryptomeria*-avenue of the Asama-shrine (Yoshida).

The floral aspect of the prairie-region is almost the same on all sides. On the Jurigi side, there are some areas clad with *Arundinaria*, *Miscanthus* or sometimes with shrubbery. The plants found in the prairie-formation are as follows:—

Polypodiaceæ.

Latin names.	Japanese names.
Adiantum monochlamys EAT.	*Hakoneso.*
Adiantum pedatum LINN.	*Kujakushida.*
Aspidium japonicum MAKINO.	*Harigane warabi.*
Aspidium oligophlebium CHRIST.	*Himewarabi.*
Asplenium incisum THUNB.	*Toranooshida.*
Asplenium varians HOOK et GREV.	*Iwatoranoo* or *Himetoranoo.*
Athyrium nipponicum HOOK.	*Inuwarabi.*
Athyrium thelypteroides DESV.	*Hakumōinode* or *Miyamashikeshida.*
Athyrium yokoscense MAKINO.	*Hebinonegoza* or *Koinuwarabi.*
Blechnum Spicant ROTH. var. subserrata LOWE.	*Shishigashira.*
Coniogramme japonica DIELS.	*Iwaganesō.*
Cryptogramme japonica THUNB.	*Tachishinobu.*
Cystopteris japonica LUERSS.	*Usuhimewarabi.*
Diplazium japonicum BEDD.	*Shikeshida.*
Diplazium lanceum PRESL.	*Herashida.*
Diplazium Wichuræ METT.	*Nokogirishida* or *Yabukujaku.*
Drymoglossum carnosum HOOK.	*Mamezuta.*
Microlepia hirsuta PRESL.	*Inushida.*
Microlepia marginalis HANCE.	*Fumotoshida.*
Microlepia Wilfordii MOORE.	*Ōrenshida.*
Nephrodium decursivo-pinnatum BK.	*Gejigejishida.*
Nephrodium dilatatum DESV.	*Shiranewarabi.*
Nephrodium Filix-mas RICH.	*Memma, Oshida* or *Miyamainode.*
Nephrodium Filix-mas RICH. var. lacerum CHRIST.	*Kumawarabi.*
Nephrodium Maximowiczii BAKER.	*Nantaishida.*
Nephrodium Phegopteris BAUMG.	*Miyamawarabi.*
Nephrodium prolixum DIELS.	*Ibukishida.*
Nephrodium sophoroides DESV.	*Hoshida.*
Nephrodium Thelypteris DESV.	*Himeshida* or *Shorima.*

Fig. 15. Prairie-region on the north side of the mountain. (after a photograph).

Niphobolus linearifolius HOOK.	*Birōdoshida.*
Odontosoria chinensis KUHN. var. tenuifolia MAKINO.	*Horashinobu.*
Onoclea sensibilis LINN.	*Kōyawarabi.*
Polypodium hastatum THUNB.	*Mitsudeuraboshi.*
Polypodium lineare THUNB.	*Nokishinobu.*
Polypodium vulgare LINN. var. japonicum FR. et SAV.	*Oshagojidenda.* .
Polystichum amabile (SM.)	*Ōbakanawarabi.*
Polystichum aristatum PRESL.	*Kanawarabi* or *Hosobakanawarabi.*
Polystichum craspedosorum DIELS.	*Tsurudenda.*
Polystichum falcatum DIELS var. Fortunei BAKER.	*Yabusotetsu.*
Polystichum tripteron SM.	*Jumonjishida, Shūmokushida* or *Mitsudekaguma.*
Polystichum varium PRESL.	*Itachishida.*
Pteridium aquilinum KUHN.	*Warabi.*
Pteris cretica LINN.	*Ōbanoinomotosō.*
Pteris serrulata LINN.	*Inomotosō.*
Struthiopteris germanica WILLD.	*Kusasotetsu.*
Woodsia manchuriensis HOOK.	*Fukuroshida.*

Woodsia polystichoides EATON.	*Iwadenda.*
Woodwardia radicans SW.	*Komochishida.*

Schizæaceæ.

Lygodium japonicum SW.	*Kanikusa.*

Osmundaceæ.

Osmunda regalis LINN. var. japonica MILDE.	*Zenmai.*

Ophioglossaceæ.

Botrychium ternatum SW.	*Fuyunohanawarabi.*

Equisetaceæ.

Equisetum arvense L	*Sugina.*

Lycopodiaceæ.

Lycopodium clavatum LINN.	*Hikagenokazura.*
Lycopodium serratum THUNB.	*Tōgeshiba.*

Selaginellaceæ.

Selaginella Kraussiana A. Br.	*Kuramagoke.*
Selaginella involvens SPRING.	*Iwahiba.*

Coniferæ.

Abies firma S. et Z.	*Momi.*
Cephalotaxus drupacea S. et Z.	*Inugaya.*
Juniperus rigida S. et Z.	*Muro* or *Nezu.*
Pinus densiflora S. et Z.	*Akamatsu.*
Taxus baccata LINN. subsp. cuspidata PILG.	*Ichii* or *Araragi.*
Torreya nucifera S. et Z.	*Kaya.*

Sparganiaceæ.

Sparganium longifolium TURCZ.	*Mikuri.*

Potamogetonaceæ.

Potamogeton crispus LINN.	*Ebimo.*
Potamogeton polygonifolius POUR.	*Hirumushiro.*
Potamogeton Gaudichaudi CHAM.	*Sasabamo.*

Alismataceæ.

Sagittaria sagittifolia LINN.	*Omodaka.*

Hydrocharitaceæ.

Blixa caulescens MAX.	*Yanagisubuta.*
Hydrocharis Morsus-ranæ LINN.	*Dochikagami.*
Ottelia alismoides PERS.	*Mizuōbako.*

Gramineæ.

Agopyrum semicostatum NEES.	*Kamogigusa.*
Agrostis perennans TUCKERM.	*Yamanukabo.*
Alopecurus fulvus SM.	*Suzumenoteppō.*
Andropogon brevifolius SW.	*Ushikusa.*
Andropogon micranthus KUNTH. var. genuinus HACKEL.	*Himeaburasusuki.*
Andropogon Nardus LINN. var. Gœringii HACKEL.	*Ogarukaya.*
Arthraxon ciliare BEAUB.	*Kobunashiba.*
Arundinella anomala STEUD.	*Tōdashiba.*
Beckmannia erucæformis HOST.	*Minogome.*
Brachypodium silvaticum BEAUV.	*Miyamakamogigusa.*
Bromus japonicus THUNB.	*Suzumenochahiki.*
Bromus pauciflorus HACK.	*Kitsunegaya.*
Brylkinia caudata FR. SCHM.	*Hajigaeri.*
Calamagrostis arundinacea ROTH. var. sciuroides HACK.	*Saitōgaya.*
Calamagrostis Epigeios ROTH.	*Yamaawa.*
Diarrhena japonica FR. et SAV.	*Tatsunohige.*
Eleusine indica GÆRTN.	*Ohigiwa.*
Eragrostis ferruginea BEAUV.	*Kazekusa.*
Eragrostis pilosa BEAUV.	*Niwahokori.*
Eriochloa villosa KUNTH.	*Narukobie.*
Festuca ovina LINN.	*Ushinokegusa.*

Glyceria remota FRIES var. japonica HACK.	*Miyamaichigotsunagi.*
Glyceria tonglensis CLARK.	*Ōbanodojōtsunagi.*
Imperata arundinacea CYR. var. Kœnigii HACK.	*Fushigechigaya.*
Isachne australis R. BR.	*Chigozasa.*
Leersia oryzoides SW. var. japonica HACK.	*Sayanukagusa.*
Lophatherum gracile BRONGN. var. elatum HACK.	*Sasakusa.*
Milium effusum LINN.	*Ibukinukabo.*
Miscanthus Matsumuræ HACK.	*Kariyasumodoki.*
Miscanthus sinensis ANDR.	*Susuki.*
Muehlenbergia japonica STEUD.	*Nezumigaya.*
Muehlenbergia japonica STEUD. var. hakonensis HACK.	*Tachinezumigaya.*
Oplismenus Burmanni BEAUB.	*Chizimizasa.*
Panicum acroanthum STEUD.	*Nukakibi.*
Panicum Crus-Galli LINN.	*Nobie.*
Panicum indicum LINN.	*Hainumeri.*
Panicum sanguinale LINN.	*Mehijiwa.*

Fig. 16. View of Mt. Fuji seen from Yoshida; forest-regions are clearly visible. 1. Abies Veitchii, 2. Tsuga Sieboldi, 3. Larix leptolepis. (after a photograph).

Pl. V. View of Mt. Fuji, seen from the Fujigawa (Fuji-river); forest regions are faintly visible. (After a photograph.)

Panicum sanguinare LINN. var. ciliare DŒLL.	*Kemehijiwa.*
Paspalum Thunbergii KUNTH.	*Suzumenohie.*
Pennisetum japonicum TRIN.	*Chikarashiba.*
Phalaris arundinacea LINN.	*Kusayoshi.*
Phragmites communis TRIN.	*Yoshi, Ashi* or *Jishibari.*
Poa annua LINN.	*Suzumenokatabira.*
Poa palustris LINN. var. strictula HACK.	*Kawaraichigotsunagi.*
Pollinia imberbis NEES. genuina HACK.	*Ashiboso.*
Pollinia nuda (TRIN.) HACK.	*Sasagaya.*
Polypogon Higegaweri STEUD.	*Hiegairi.*
Rottbœllia compressa LIN. f. var. japonica HACK.	*Ushinoshippei.*
Sasa albo-marginata MAK. et SHIB.	*Kumazasa.*
Sasa borealis MAK. et SHIB.	*Suzutake.*
Setaria glauca BEAUB.	*Kin-enokoro.*
Setaria pachystachys F. et S.	*Hama-enokoro.*
Setaria viridis BEAUV.	*Enokorogusa.*
Spodiopogon cotulifer HACK.	*Aburasusuki.*
Spodiopogon sibiricus TRIN.	*Oaburasusuki.*
Sporobolus elongatus R. BR.	*Nezumino-o.*
Themeda Forskali HACK. var. japonica HACK.	*Megarukaya.*
Trisetum flavescens BEAUB. var. papillosum HACK.	*Kanitsurigusa*
Zoysia pungens WILLD.	*Shiba*

Cyperaceæ.

Bulbostylis barbata KUNTH.	*Hatagaya*
Carex arenicola F. SCHMIDT.	*Kurokawazusuge*
Carex Brownii TUCK. var. transversa KUEK.	*Yawarasuge* or *Awabosuge.*
Carex brunnea THUNB.	*Nakirisuge*
Carex caryophylla LAUER subsp. nervata KUEK.	*Shibasuge.*
Carex curvicollis FR. et SAV.	*Yamanaruko.*
Carex Gaudichaudiana KUNTH var. Thunbergii KUEK.	*Azesuge.*

Carex gibba WAHL.	*Masukusa.*
Carex incisa BOOT.	*Tanisuge.*
Carex ischnostachya STEUD.	*Jūzusuge.*
Carex japonica THUNB.	*Higokusa.*
Carex japonica THUNB. var. aphanolepis KUEK.	*Sawasuge.*
Carex japonica THUNB. var. chlorostachys KUEK.	*Shirasuge.*
Carex Morrowii BOOT.	*Kansuge.*
Carex Onœi FR. et SAV.	*Harisuge.*
Carex pseudo-conica FR. et SAV.	*Ōetosuge.*
Carex satsumensis FR. et SAV.	*Aburashiba.*
Carex stenantha FR. et SAV.	*Iwasuge.*
Cyperus difformis LINN.	*Tamagayatsuri.*
Cyperus Haspan LINN.	*Mizuhanabi.*
Cyperus Iria LINN.	*Kogomegayatsuri.*
Cyperus pilosus VAHL.	*Ushigayatsuri* or *Onigayatsuri.*
Cyperus rotundus LINN.	*Hamasuge.*
Eleocharis acicularis R. BR.	*Matsubai.*
Eleocharis japonica MIQ.	*Harii.*
Fimbristylis autumnalis RŒM. et SCH.	*Himetentsuki.*
Fimbristylis diphylla VAHL.	*Tentsuki.*
Fimbristylis miliacea VAHL.	*Hideriko.*
Fimbristylis squarrosa VAHL.	*Azetentsuki.*
Kyllingia brevifolia ROTTB.	*Himekugu.*
Lipocarpha microcephala KTH.	*Hinjigayatsuri.*
Mariscus Sieberianus NEES.	*Kugu.*
Pycreus globosus REICHB. var. stricta HOOK.	*Azegayatsuri.*
Scirpus erectus POIR.	*Hotarui.*
Scirpus Cyperinus KUNTH var. concolor MAK.	*Aburagaya.*

Araceæ.

Acorus gramineus AIT.	*Sekishō.*
Arisæma serratum SCHOTT. form. Blumei MAK.	*Tennanshō.*
Pinellia tripartita SCHOTT.	*Ōhange.*

Eriocaulaceæ.

Eriocaulon sexangulare LINN.	*Mizutamasō.*

Commelinaceæ.

Aneilema keisak HASSK.	*Ibokusa.*
Commelina communis LINN.	*Tsuyukusa.*

Pontederiaceæ.

Monochoria Korsakowii REGEL. et MAACK.	*Mizuaoi.*
Monochoria vaginalis PRESL. var. plantaginea SOLMS.-LAUB.	*Mizunagi.*

Juncaceæ.

Juncus effusus LINN. var. decipiens BUCH.	*Yi.*
Luzula campestris DC. var. capitata MIQ.	*Suzumenohie.*
Luzula plumosa E. MEY.	*Nukaboshisō.*

Liliaceæ.

Allium japonicum REGEL.	*Yamarakkiō.*
Clintonia udensis TRAUTV.	*Tsubameomoto.*
Disporum sessile DON.	*Hōchakusō.*
Disporum smilacinum A. GR.	*Chigoyuri.*
Hemerocallis fulva LINN.	*Yabukwanzō.*
Hosta cœrulea TRATT. form. lancifolia MATSUM.	*Mizugibōshi.*
Lilium auratum LINDL.	*Yamayuri.*
Lilium concolor SALISB var. parthenion ELW.	*Akahimeyuri.*
Lilium cordifolium THUNB.	*Ubayuri.*
Lilium Maximowiczii REGEL.	*Ko-oniyuri.*
Liriope graminifolia BAK. var. communis MAX.	*Yaburan.*
Metanarthecium luteo-viride MAXIM.	*Nogiran*
Polygonatum latifolium DESF. var. commutatum BAKER.	*Narukoyuri.*

Polygonatum officinale ALL.	*Amadokoro.*
Scilla japonica BAKER	*Tsurubo.*
Smilax china LINN.	*Sarutoriibara.*
Smilax herbacea LINN.	*Shiode.*
Smilax Sieboldi MIQ.	*Yamakashiū.*
Tricyrtis hirta HOOK.	*Hototogisu.*
Tricyrtis macropoda MIQ.	*Yamahototogisu.*
Veratrum Maackii REGEL.	*Aoyagisō.*
Veratrum nigrum LINN.	*Shurosō.*

Amaryllidaceæ.

Lycoris sanguinea MAXIM.	*Kitsunenokamisori.*

Dioscoreaceæ.

Dioscorea gracillima MIQ.	*Tachidokoro.*
Dioscorea japonica THUNB.	*Yamanoimo.*
Dioscorea septemloba THUNB.	*Momijidokoro.*

Iridaceæ.

Iris japonica THUNB.	*Shaga.*
Iris sibirica LINN. var. orientalis THUNB.	*Ayame.*

Orchidaceæ.

Calanthe discolor LINDL.	*Ebine.*
Epipactis erecta WETTST.	*Ginran.*
Epipactis falcata WETTST.	*Kinran.*
Epipactis Thunbergii A. GRAY.	*Suzuran.*
Goodyera pendula MAXIM.	*Tsurishūsuran.*
Liparis auriculata BLUME.	*Kumokirisō.*
Neottia micrantha LINDL.	*Himemuyōran.*
Platanthera ussuriensis MAXIM.	*Tonbosō.*
Spiranthes australis LINDL.	*Nejibana.*
Oberonia japonica MAK.	*Yōrakuran.*

Saururaceæ.

Houttuynia cordata THUNB.	*Dokudami.*

Chloranthaceæ.

Chloranthus serratus R. et S.	*Futarishizuka.*
Chloranthus japonicus SIEB.	*Hitorishizuka.*

Salicaceæ.

Populus tremula LINN. var. villosa WESM.	*Yamanarashi.*
Salix Caprea LINN.	*Bakkoyanagi.*
Salix japonica THUNB.	*Shibayanagi.*

Betulaceæ.

Alnus Yasha MATSUM.	*Yashabushi.*
Carpinus japonica BLUME.	*Kumashide.*
Carpinus yedoensis MAXIM.	*Inushide.*
Corylus heterophylla FISH.	*Hashibami.*

Fagaceæ.

Castanea vulgaris LAM. var. japonica DC.	*Kuri.*
Quercus acuta THUNB.	*Akagashi.*
Quercus cuspidata THUNB.	*Shiinoki.*

Fig. 17. View of Mt. Fuji seen from Suzukawa, forest regions are faintly visible, (after a photograph.)

Quercus dentata THUNB.	*Kashiwa.*
Quercus glandulifera BLUME.	*Konara.*
Quercus glauca THUNB.	*Arakashi.*
Quercus grosseserrata BLUME.	*Mizunara.*
Querus serrata THUNB.	*Kunnogi.*

Ulmaceæ.

Celtis sinensis PERS.	*Yenoki.*

Moraceæ.

Fatoua pilosa GAUD. var. subcordata RUPR.	*Kuwakusa.*
Humulus japonicus S. et Z.	*Kanamugura.*

Urticaceæ.

Bœhmeria holosericea BLUME.	*Oniyabumao.*
Bœhmeria japonica MIQ.	*Yabumao.*
Bœhmeria japonica MIQ. var. tricuspis HANCE.	*Akaso.*
Bœhmeria nivea BLUME.	*Mao.*
Bœhmeria Sieboldiana BLUME.	*Nagabayabumao.*
Bœhmeria spicata THUNB.	*Koakaso.*
Elatostema umbellatum BLUME var. majus MAXIM.	*Uwabamisō.*
Laportea bulbifera WEDD.	*Mukagoirakusa.*
Memorialis hirta WEDD.	*Tsurumao.*
Nanocnide japonica BLUME.	*Katensō.*
Pellionia radicans WEDD.	*Sanshōsō.*
Pilea petiolaris BLUME.	*Miyamamuzu.*
Urtica Thunbergiana S. et Z.	*Irakusa.*

Loranthaceæ.

Viscum album LINN.	*Yadoriki.*

Santalaceæ.

Thesium chinense TURCZ.	*Kanabikisō.*

Aristolochiaceæ.

Aristolochia debilis S. et Z.	*Umanosuzukusa.*
Aristolochia Kæmpferi WILLD.	*Oba-umanosuzukusa.*

Polygonaceæ.

Polygonum alatum HAM.	*Tunisoba.*
Polygonum cuspidatum S. et Z.	*Itadori.*
Polygonum esculentum	*Soba.*
Polygonum flaccidum ROXB.	*Yanagitade.*
Polygonum muricatum LINN.	*Nagaba-unagizukami.*
Polygonum Posumbu HAM.	*Hanatade.*
Polygonum Posumbu HAM. var. Blumei (MEISN.)	*Inutade.*
Polygonum senticosum MEISN.	*Mamakonoshirinugui.*
Polygonum Sieboldi MEISN.	*Unagizuru.*
Polygonum Thunbergii S. et Z.	*Mizosoba.*
Polygonum Thunbergii S. et Z. var. Maackianum MAXIM.	*Sudekusa.*
Polygonum viscosum HAM. var. vernicosum MEISN.	*Nebaritade.*
Rumex Acetosa LINN.	*Suiba.*
Rumex japonicus MEISN.	*Gishigishi.*

Chenopodiaceæ.

Chenopodium album LINN.	*Akaza.*

Amarantaceæ.

Achyranthes bidentata BL. var. japonica MIQ.	*Inokozuchi.*
Amarantus Blitum LINN.	*Inubiyu.*

Portulacaceæ.

Portulaca oleracea LINN.	*Suberihiyu.*

Caryophyllaceæ.

Arenaria serpyllifolia LINN. var. leptoclados GUSS.	*Nominotsuzuri.*

Cerastium vulgatum LINN. var. glandulosum KOCH.	*Miminagusa.*
Cucubalus baccifer LINN. var. japonicus MIQ.	*Nanbanhakobe.*
Dianthus superbus LINN.	*Kawaranadeshiko.*
Lychnis Miqueliana ROHR.	*Fushigurosenno.*
Melandryum firmum ROHR.	*Fushiguro.*
Stellaria aquatica SCOP.	*Ushihakobe.*
Stellaria florida FISCH. var. angustifolia MAXIM.	*Iwatsumekusa.*
Stellaria media LINN.	*Hakobe.*
Stellaria uliginosa LINN.	*Nominofusuma.*

Nymphæaceæ.

Nuphar japonicum DC.	*Kawahone.*

Ceratophyllaceæ.

Ceratophyllum demersum LINN.	*Kingiyomo.*

Magnoliaceæ.

Illicium anisatum LINN.	*Shikimi*
Magnolia Kobus DC.	*Kobushi.*
Magnolia hypoleuca S. et Z.	*Hō-noki.*
Kadsura japonica LINN.	*Sanekazura.*
Schizandra nigra MAXIM.	*Matsubusa.*

Ranunculaceæ.

Aconitum Fischeri REICH.	*Torikabuto.*
Aconitum lycoctonum LINN.	*Reiginsō.*
Anemone cernua THUNB.	*Okinagusa.*
Anemone japonica S. et Z.	*Shūmeigiku.*
Aquilegia glandulosa FISCH.	*Yamaodamaki.*
Cimicifuga fœtida LINN. var. simplex HUTH.	*Sarashinashōma.*
Clematis alpina MILL.	*Miyamahanshōzuru.*
Clematis apiifolia DC.	*Botanzuru.*
Clematis heracleifolia DC. var. stans (S. et Z.)	*Kusabotan.*

Clematis recta LINN. var. paniculata (THUNB.)	*Senninsō.*
Isopyrum stoloniferum MAXIM.	*Shirokanesō.*
Pæonia obovata MAXIM.	*Yamashakuyaku.*
Ranunculus acer LINN.	*Kinpōge.*
Ranunculus aquatilis LINN. var. flaccidus (PERS.) form. Drouetii HIERM.	*Baikwamo.*
Ranunculus japonicus LUNGSD.	*Kitsunenobotan.*
Ranunculus sceleratus LINN.	*Tagarashi.*
Thalictrum minus LINN. var. elatum LECOY.	*Akikaramatsu.*
Thalictrum simplex LINN. var. affine RGL.	*Nokaramatsu.*

Lardizabalaceæ.

Akebia lobata DCNE.	*Mutsuba-akebi.*
Akebia quiuata DCNE.	*Akebi.*

Berberidaceæ.

Berberis Thunbergii DC.	*Kotoritomarazu.*
Epimediuu macranthum MORR. et DECNE.	*Ikarisō.*

Minispermaceæ.

Cocculus Thunbergii DC.	*Aotsuzurafuji.*

Lauraceæ.

Ciunamomum pedunculatum NEES.	*Yabunikkei.*
Lindera glauca BLUME.	*Yamakōbashi.*
Lindera obtusiloba BLUME.	*Dankōbai.*
Lindera præcox BLUME.	*Aburachan.*
Liudera umbellata THUNB.	*Kuromogi.*
Litsea glauca SIEB.	*Shirodamo.*
Machilus Thunbergii S. et Z.	*Inugusu.*

Papaveraceæ.

Chelidonium Majus LINN.	*Kusanowō.*
Corydalis decumbens PERS.	*Yabu-engosaku.*

Corydalis incisa PERS.	*Murasakikeman.*
Corydalis pallida PERS.	*Miyamakikeman.*
Macleya cordata R. BR.	*Chanpagiku.*

Cruciferæ.

Arabis sagittata DC.	*Yamahatazao.*
Capsella bursa-pastoris MŒNCH.	*Nazuna.*
Cardamine hirsuta LINN. var. sylvatica LINN.	*Tanetsukebana.*
Dontstemon dentatus BGE.	*Hanahatazao.*
Draba nemorosa LINN. var. hebecarpa LEDEB.	*Inunazuna.*
Nasturtium montanum WALL.	*Sukashitakabō.*
Nasturtium palustre DC.	*Inugarashi.*

Crassulaceæ.

Sedum Alfredi HCE.	*Komochimannengusa.*
Sedum Kamtschaticum FISCH.	*Kirinsō.*
Sedum lineare THUNB.	*Onomannengusa.*
Sedum Telephium LINN. var. purpureum.	*Benkeisō.*
Sedum verticillatum LINN.	*Mitsubabenkeisō.*

Saxifragaceæ.

Astilbe chinensis FR. et SAV. var. japonica MAXIM.	*Awamorishōma* or *Chidakesashi.*
Astilbe Thunbergii MIQ.	*Tori-ashishōma.*
Deutzia gracilis S. et Z.	*Hime-utsugi.*
Deutzia scabra THUNB.	*Utsugi.*
Hydrangea hirta S. et Z.	*Koajisai.*
Hydrangea involucrata SIEB.	*Tama-ajisai.*
Hydrangea paniculata SIEB.	*Norinoki.*
Hydrangea scandens MAXIM.	*Gotōzuru.*
Parnassia palustris LINN.	*Mumebachisō.*
Ribes fasciculatum S. et Z.	*Yabusanzashi.*
Saxifraga cortusæfolia S. et Z.	*Daimonjisō.*
Saxifraga sarmentosa LINN.	*Yukinoshita.*

Hamamelidaceæ.

Hamamelis japonica SIEB. et ZUCC.	*Mansaku.*

Rosaceæ.

Agrimonia pilosa LEDEB.	*Kinmizuhiki.*
Aruncus silvester KOSTEL.	*Yamabukishōma.*
Cydonia japonica PERS. var. pygmæa MAXIM.	*Kusaboke.*
Fragaria indica ANDR.	*Hebiichigo.*
Geum japonicum THUNB.	*Daikonsō.*
Potentilla chinensis SER.	*Kawarasaiko.*
Potentilla cryptotæniæ MAXIM.	*Mitsumoto.*
Potentilla Kleiniana W. et A.	*Ōhebi-ichigo.*
Pourthiæa villosa DCNE.	*Kamatsuka.*
Pyrus Toringo SIEB.	*Zumi.*
Rosa multiflora THUNB.	*Noibara.*
Rosa Wichuraiana CREP.	*Terihanoibara.*
Rubus palmatus THUNB.	*Kī-ichigo.*
Rubus parvifolius LINN.	*Nawashiro-ichigo.*
Rubus phœnicolasius MAXIM.	*Urajiroichigo.*
Rubus rosæfolius SM.	*Baraichigo.*
Rubus Thunbergii S. et Z.	*Kusa-ichigo.*
Rubus trifidus THUNB.	*Kajiichigo.*
Sanguisorba officinalis LINN.	*Waremokō.*
Spiræa Blumei G. DON.	*Iwagasa.*
Spiræa bullata MAXIM.	*Koshimotsuke.*
Spiræa Thunbergii SIEB.	*Kogomebana.*
Stephanandra flexuosa S. et Z.	*Kogome-utsugi.*
Stephanandra Tanakæ FR. et SAV.	*Kana-utsugi.*
Ulmaria multijuga (MAXIM.)	*Shimotsukesō.*
Ulmaria purpurea (MAXIM.)	*Kiōganoko.*

Leguminosæ.

Æschynomene indica LINN.	*Kusanemu.*
Albizzia Julibrissin BOIV.	*Nemunoki.*
Amphicarpæa Edgeworthii BENTH. var. japonica OLIV.	*Yabumame.*
Cæsalpinia sepiaria ROXB.	*Jakkei-ibara.*

Cladrastis amurensis B. et H. var. floribunda MAXIM.	*Inuenjū.*
Crotalaria sessilifiora LINN.	*Tanukimame.*
Cassia mimosoides LINN.	*Kawaraketsumei.*
Desmodium Gardneri BENTH.	*Ōbanusubitohagi.*
Desmodium laburnifolium DC.	*Misonaoshi.*
Desmodium Oldhami Oliv.	*Fujikanzō.*
Desmodium podocarpum DC. var. japonicum MAXIM.	*Nusubitohagi.*
Desmodium polycarpum DC.	*Kusahagi.*
Indigofera pseudotinctoria MATSUM.	*Komatsunagi.*
Kraunhia floribunda TAUB.	*Fuji.*
Kraunhia japonica TAUB.	*Natsufuji.*
Lathyrus Davidii HANCE.	*Itachisasage.*
Lespedeza bicolor TURCZ.	*Hagi.*
Lespedeza Buergeri MIQ.	*Kihagi.*
Lespedeza cyrtobotrya MIQ.	*Marubahagi.*
Lespedeza juncea PERS. var. sericea HEMSL.	*Medohagi.*
Lespedeza pilosa S. et Z.	*Nekohagi.*
Lespedeza stricta H. et A.	*Yahazusō.*
Lespedeza villosa PERS.	*Inuhagi.*
Lespedeza virgata DC.	*Maki-ihagi.*
Lotus corniculatus LINN. var. japonicus RGL.	*Miyakogusa.*
Pueraria Thunbergiana BENTH.	*Kuzu.*
Rhynchosia volubilis LOUR.	*Tankirimame.*
Sophora platycarpa MAXIM.	*Yamayenjiū.*
Vicia Cracca LINN. var. japonica MIQ.	*Kusafuji.*
Vicia pseudo-orobus FISCH. et MEY.	*Ōbakusafuji.*
Vicia sativa LINN.	*Yahazu-endō.*
Vicia unijuga BR.	*Nantenhagi.*

Geraniaceæ.

Geranium nepalense SWEET.	*Gennoshōko.*
Geranium Sieboldi MAXIM.	*Tachifūro.*
Geranium Wilfordi MAXIM.	*Kofūro.*

Oxalidaceæ.

Oxalis corniculata LINN.	*Katabami.*

Linaceæ.

Linum possarioides PL.	*Matsubaninjin.*

Rutaceæ.

Bœninghausenia albiflora REICHB.	*Arashigusa.*
Orixa japonica THUNB.	*Kokusagi.*
Zanthoxylum pepiritum DC.	*Sanshū.*
Zanthoxylum schinnifolium S. et Z.	*Inuzanshū.*

Simarubaceæ.

Picrasma quassioides BENN.	*Nigaki.*

Polygalaceæ.

Polygala japonica HOUTT.	*Himehagi.*

Euphorbiaceæ.

Acalypha australis LINN.	*Inokigusa.*
Euphorbia adenochlora MORR. et DCNE.	*No-urushi.*
Euphorbia humifusa WILLD.	*Nishikigusa.*
Euphorbia helioscopia LINN.	*Tōdaigusa.*
Euphorbia pekinensis RUPR.	*Takatōdai.*
Euphorbia Sieboldiana MORR. et DCNE.	*Natsutōdai.*
Phyllanthus Matsumuræ HAYATA.	*Himemikansō.*
Phyllanthus Urinaria LINN.	*Komikansō.*
Securinega fluggeoides MUELL ARG.	*Hitotsubahagi.*

Callitrichaceæ.

Callitriche japonica ENGEL.	*Awagoke.*

Coriariaceæ.

Coriaria japonica A. GR.	*Dokuutsugi.*

Buxaceæ.

Buxus sempervirens var. japonica MAKINO.	*Asamatsuge.*

Anacardiaceæ.

Rhus semi-alata MURR. var. Osbeckii DC.	*Fushinoki.*
Rhus silvestris S. et Z.	*Yamahaze.*
Rhus Toxicodendron LINN. var. radicans MIQ.	*Tsutaurushi.*
Rhus trichocarpa MIQ.	*Yamaurushi.*

Aquifoliaceæ.

Ilex crenata THUNB.	*Inutsuge.*
Ilex integra THUNB.	*Mochinoki.*
Ilex rugosa FR. SCHM.	*Tsurutsuge.*
Ilex Sieboldi MIQ.	*Umemodoki.*

Celastraceæ.

Celastrus articulatus THUNB.	*Tsuru-umemodoki.*
Euonymus alata K. KOCH.	*Nishikigi.*
Euonymus europæa L. var. Hamiltoniana MAXIM.	*Mayumi.*
Euonymus japonica THUNB.	*Masaki.*
Euonymus oxyphylla MIQ.	*Tsuribana.*
Tripterigyum Wilfordi HOOK.	*Kurozuru.*

Staphyleaceæ.

Euscaphis staphyleoides S. et Z.	*Gonzui.*

Balsaminaceæ.

Impatiens nolitangere LINN.	*Kitsurifunesō.*
Impatiens Textori MIQ.	*Tsurifunesō.*

Sabiaceæ.

Meliosma myriantha S. et Z.	*Awabuki.*
Meliosma tenuis MAXIM.	*Miyamahōso.*

Rhamnaceæ.

Berchemia racemosa S. et Z.	*Kumayanagi.*
Rhamnus japonica MAXIM. var. genuina MAXIM.	*Kuroumemodoki.*

Vitaceæ.

Vitis flexuosa THUNB.	*Sankakuzuru.*
Vitis heterophylla THUNB.	*Nobudō.*
Vitis inconstans MIQ.	*Tsuta.*
Vitis Thunbergii S. et Z.	*Yebidsuru.*
Vitis coignetiæ PULL.	*Kanebu.*

Theaceæ.

Thea japonica NOIS.	*Tsubaki.*
Eurya japonica THUNB.	*Hisakaki.*

Stachyuraceæ.

Stachyurus præcox S. et Z.	*Kifuji.*

Guttiferæ.

Hypericum Ascyron LINN.	*Tomoisō.*
Hypericum chinense LINN.	*Bijōyanagi.*
Hypericum erectum THUNB.	*Otogirisō.*
Hypericum erectum THUNB. var. cæspitosum MAKINO.	*Fuji-otogiri.*
Hypericum japonicum THUNB.	*Hime-otogiri.*
Hypericum patulum THUNB.	*Kinshibai.*

Elatinaceæ.

Elatine orientalis MAKINO.	*Mizuhakobe.*

Violaceæ.

Viola japonica LANGSD.	*Kosumire.*
Viola Patrinii DC. var. chinensis GING.	*Sumire.*
Viola silvestris KIT. var. grypoceras A. GR.	*Tuchitsubosumire.*

Thymelæaceæ.

Daphne pseudo-mezereum A. GR.	*Onishibari.*
Wikstrœmia Ganpi MAXIM.	*Kozampi.*

Elæagnaceæ.

Elæagnus glabra THUNB.	*Tsurugumi.*
Elæagnus macrophylla THUNB.	*Marubagumi.*
Elæagnus umbellata THUNB.	*Akigumi.*

Lythraceæ.

Lythrum Salicaria LINN.	*Misohagi.*
Rotala indica KŒHNE var. uliginosa MIQ.	*Kikashigusa.*

Onagraceæ.

Circæa quadrisulcata MAXIM.	*Mizutamasō.*
Epilobium angustifolium LINN.	*Yanagisō.*
Ludwigia prostrata ROXB.	*Tagobō.*

Halorrhagidaceæ.

Haloragis micrantha R. BR.	*Arinotōgusa.*

Fig. 18. *Vitis Coignetiæ* PULL. and *Angelica polyclada* FRANCH., Yoshida side, about 1200 m. above the sea. (From the Atlas of Japanese Vegetation, by permission of Prof. M. MIYOSHI.)

Araliaceæ.

Aralia cordata THUNB.	*Udo.*
Aralia sinensis LINN.	*Taranoki.*
Acanthopanax divaricatum S. et Z.	*Takanotsume.*
Acanthopanax ricinifolium S. et Z.	*Harigiri.*
Acanthopanax spinosum MIQ.	*Ukogi.*
Hedera Helix var. colchica C. KOCH.	*Kizuta.*
Helwingia japonica DIETR.	*Hanaikada.*

Umbelliferæ.

Angelica Miqueliana MAXIM.	*Yamazeri* or *Serimodoki.*
Angelica polyclada FRANCH.	*Shishiudo.*
Bupleurum falcatum LINN.	*Mishimasaiko.*
Bupleurum sachalinense FR. et SAV.	*Marubasaiko.*
Chamæle tenera MIQ.	*Sentōsō.*
Cicuta virosa LINN.	*Dokuzeri.*
Cryptotænia japonica HASSK.	*Mitsuba.*
Hydrocotyle asiatica LINN.	*Tsubokusa.*
Hydrocotyle rotundifolia ROXB.	*Chidomegusa.*
Ligusticum acutilobum S. et Z.	*Tōki.*
Œnanthe stolonifera DC.	*Seri.*
Osmorhiza japonica S. et Z.	*Yabuninjin.*
Pimpinella calycina MAXIM.	*Dakezeri* or *Takanotsume.*
Torilis japonica DC.	*Yabujirami.*

Cornaceæ.

Aucuba japonica THUNB.	*Aoki.*
Cornus ignorata C. KOCH.	*Kumanomizuki.*
Cornus macrophylla WALL.	*Mizuki.*
Marlea platanifolia S. et Z.	*Urinoki.*

Clethraceæ.

Clethra barbiuervis S. et Z.	*Riōbu.*

Ericaceæ.

Enkianthus nikœnsis MAKINO.	*Aburatsutsuji.*
Enkianthus japonicus HOOK.	*Dōdantsutsuji.*
Pieris japonica D. DON.	*Asebi.*
Pieris ovalifolia D. DON.	*Kashioshimi.*
Rhododendron indicum SW. var. α Kæmpferi MAXIM.	*Yamatsutsuji.*
Rhododendron sinense SW.	*Rengetsutsuji.*
Vaccinium bracteatum THUNB.	*Shashampo.*
Vaccinium Buergeri MIQ.	*Ōbasunoki.*
Vaccinium hirtum THUNB.	*Sunoki* or *Usunoki.*

Myrsinaceæ.

Ardisia japonica BL.	*Yabukōji.*

Primulaceæ.

Lysimachia clethroides DUBY.	*Torano-o* or *Okatorano-o.*
Lysimachia decurrens G. FORST.	*Miyamatagobō.*
Lysimachia Fortunei MAXIM.	*Numatorano-o.*
Lysimachia japonica THUNB.	*Konasubi.*
Lysimachia vulgaris LINN.	*Kusaredama.*

Styracaceæ.

Styrax japonica S. et Z.	*Egonoki.*

Symplocaceæ.

Symplocos cratægoides HAM.	*Sawafutagi.*

Oleaceæ.

Fraxinus Bungeana DC. var. pubinervis WG.	*Tonerikko.*
Fraxinus longicuspis S. et Z.	*Aotago.*
Ligustrum japonicum THUNB.	*Nezumimochi.*
Osmanthus Aquifolium B. et H.	*Hiiragi.*

Loganiaceæ.

Mitrasacme polymorpha R. BR.	*Ainai.*

Gentianaceæ.

Crawfurdia fasciculata WALL.	*Tsururindō.*
Gentiana scabra BGE. var. Buergeri MAXIM.	*Rindō.*
Halenia sibirica BORK.	*Hana-ikari.*
Swertia bimaculata CLARK.	*Akebonosō.*
Swertia chinensis FRANCH.	*Senburi.*

Apocynaceæ.

Trachelospermum jasminoides LEM.	*Teikakazura.*

Asclepiadaceæ.

Cynanchum caudatum MAX.	*Ikema.*
Pycnostelma chinensis BGE.	*Suzusaiko.*
Tylophora nikœnsis MATSUM.	*Ko-kamomezuru.*

Convolvulaceæ.

Calystegia sepium R. BR.	*Hirugao.*
Cuscuta japonica CHOIS. var. thyrsoidea ENGELM.	*Nenashikazura.*

Borraginaceæ.

Cynoglossum furcatum WALL.	*Orurisō.*
Trigonotis peduncularis BENTH.	*Tabirako.*

Verbenaceæ.

Callicarpa japonica THUNB.	*Murasakishikibu.*
Clerodendron trichotomum THUNB.	*Kusagi.*
Phryma leptostachya LINN.	*Haedokusō.*

Labiatæ.

Ajuga decumbens THUNB.	*Jūnihitoe.*
Calamintha chinensis BENTH.	*Kurumabana.*
Calamintha gracilis BENTH.	*Tōbana.*
Comanthosphace sublanceolata S. MOORE.	*Fujitenninsō.*
Elsholtzia cristata WILLD.	*Naginatakōjū.*

Lamium album LINN.	*Odorikosō.*
Leonurus macranthus MAXIM.	*Kisewata.*
Mentha arvensis LINN. var. piperascens HOLMES.	*Megusa.*
Mosla grosseserrata MAXIM.	*Mizokōjū* or *himijiso.*
Mosla punctata MAXIM.	*Inukōjū.*
Plectranthus glaucocalyx MAXIM. var. japonicus MAXIM.	*Hikiokoshi.*
Plectranthus inflexus VAHL.	*Yamahakka.*
Plectranthus longitubus MIQ.	*Akichōji.*
Prunella vulgaris LINN.	*Utsubogusa.*
Salvia japonica THUNB. var. bipinnata FR. et SAV.	*Akinotamurasō.*
Salvia nipponica MIQ.	*Kotojisō.*
Scutellaria indica LINN. var. japonica MAXIM.	*Tatsunamisō.*
Stachys aspera MICHX. var. japonica MAXIM.	*Chorogidamashi.*
Teucrium japonicum WILLD.	*Nigakusa.*
Teucrium stoloniferum HAM. var. Miquelianum MAXIM.	*Tsurunigakusa.*

Solanaceæ.

Lycium chinense MILL.	*Kuko.*

Scrophulariaceæ.

Euphrasia officinalis LINN. var. vulgaris LEDEB.	*Kogomegusa.*
Lindernia angustifolia WETTS.	*Azetōgarashi.*
Lindernia crustacea (L.) F. v. M.	*Urikusa.*
Lindernia pyxidaria ALL.	*Azena.*
Mazus rugosus LOUR. var. macranthus F. et S.	*Sagigoke.*
Mimulus nepalensis BENTH.	*Mizohōzuki.*
Pedicularis gloriosa BISS. et MOOR.	*Hankwai-azami.*
Pedicularis resupinata LINN.	*Shiogamagiku.*
Phteirospermum chinense BGE.	*Koshiogama.*
Scrophularia Patriniana WYDL.	*Himeno-usutsubo.*
Siphonostegia chinensis BENTH.	*Hikiyomogi.*

Pl. VI. View of Mt. Fuji, seen from the Pacific coast; the coniferous, deciduous tree, and prairie, regions are visible. (After a photo graph; a little brush is put in by the author in order to make the plant regions clear.)

Veronica cana WALL.	*Kuwagatasō.*
Veronica longifolia LINN.	*Ruritorano-o.*
Veronica spuria LINN.	*Yamatorano-o.*
Veronica virginica LINN.	*Kukaisō.*

Orobanchaceæ.

Æginetia indica ROXB.	*Nanbangiseru.*

Gesneraceæ.

Conandron ramondioides S. et Z.	*Iwatabako.*

Acanthaceæ.

Dicliptera crinita NEES.	*Hagurosō.*
Hygrophila lancea MIQ.	*Oginotsume.*
Justicia procumbens LINN.	*Kitsunenomago.*

Plantaginaceæ.

Plantago major LINN. var. asiatica DCNE.	*Obako.*

Rubiaceæ.

Galium aparine LINN.	*Yuyemugura.*
Galium asprellum MICHX.	*Hosoba-ya-emugura.*
Galium brachypodium MAXIM.	*Maruba-yotsubamugura*
Galium gracile BGE.	*Yotsubamugura.*
Galium verum LINN. var. lacteum. MAXIM.	*Kawaramatsuba.*
Galium trifidum LINN.	*Hosobayotsubamugura.*
Gardenia florida LINN.	*Kuchinashi.*
Oldenlandia diffusa ROXB.	*Futabamugura.*
Oldenlandia hirsuta LINN. f.	*Hashikagusa.*
Pædcria tomentosa BL.	*Hekusokazura.*
Serissa fœtida COMM.	*Hakuchōge.*

Caprifoliaceæ.

Abelia spathulata S. et Z.	*Tsukubane-utsugi.*
Diervilla floribunda S. et Z.	*Nishikiutsugi.*
Diervilla grandiflora S. et Z.	*Hakone-utsugi.*

Diervilla japonica DC.	*Beni-utsugi* or *Tani-utsugi.*
Diervilla Middendorfiana CARR.	*Ukon-utsugi.*
Lonicera gracilipes MIQ.	*Uguisukagura.*
Lonicera japonica THUNB.	*Suikazura.*
Lonicera Morrowii A GR.	*Kinginboku* or *Hyōtanboku.*
Sambucus javanica BL.	*Sokuzu.*
Sambucus racemosa LINN.	*Niwatoko.*
Viburnum dilatatum THUNB.	*Gamazumi.*
Viburnum erosum THUNB.	*Kobanogamazumi.*
Viburnum Sieboldi MIQ.	*Gomaki.*

Valerianaceæ.

Patrinia scabiosæfolia LINK.	*Omina-eshi.*
Patrinia villosa JUSS.	*Otoko-eshi.*

Dipsaceæ.

Scabiosa japonica MIQ.	*Matsumushisō.*

Cucurbitaceæ.

Actinostemma racemosum MAXIM.	*Gokizuru.*
Trichosanthes cucumeroides MAXIM.	*Karasu-uri.*

Campanulaceæ.

Adenophora verticillata FISCH. var. verticillata FR. et SAV.	*Tsuriganeninjin.*
Campanula punctata LAM.	*Hotarubukuro.*
Codonopsis lanceolata B. et H.	*Tsuruninzin.*
Platycodon grandiflorus DC.	*Kikyō.*
Phyteuma japonicum MIQ.	*Shideshajin.*

Compositæ.

Achillea ptarmicoides MAXIM.	*Shirobananokogirisō.*
Adenocaulon bicolor HOOK.	*Nobuki.*
Ainsliæa apiculata SCH. BIP.	*Kikkōhaguma.*
Ainsliæa acerifolia SCH. BIP.	*Momijihaguma.*
Anaphalis margaritacea B. et H.	*Yamahahako.*
Anaphalis yedœnsis FR. et SAV.	*Kawarahahako.*
Artemisia capillaris THUNB.	*Kawarayomogi.*

Artemisia japonica THUNB.	*Otokoyomogi.*
Artemisia Keiskeana MIQ.	*Inuyomogi.*
Artemisia vulgaris LINN. var. indica MAXIM.	*Yomogi.*
Aster fastigiatus FISCH. et MEY.	*Himeshion.*
Aster indicus LINN.	*Yomena.*
Aster indicus LINN. var. pinnatifidus MAXIM.	*Yūgagiku.*
Aster scaber THUNB.	*Shirayamagiku.*
Aster trinervius ROXB.	*Yamashirogiku.*
Atractylis ovata THUNB.	*Okera.*
Bidens pilosa LINN.	*Sendangusa.*
Bidens tripartita LINN.	*Ta-ukogi.*
Cacalia Krameri (FR. et SAV.)	*Yaburegasa.*
Carpesium abrotanoides LINN.	*Yabutabako.*
Carpesium triste MAXIM.	*Gankubiyabutabako.*
Chrysanthemum sinense var. japonicum MAXIM.	*Riunōgiku.*
Centaurea atriplicifolia (DC.)	*Yamabokuchi.*
Cirsium japonicum DC.	*No-azami.*
Cirsium spicatum (MAXIM.)	*Yama-azami.*
Eclipta alba HASSK.	*Takasaburō.*
Erigeron annuus PERS.	*Himejion.*
Erigeron canadensis LINN.	*Himemukashiyomogi.*
Eupatorium japonicum THUNB.	*Hiyodoribana.*
Eupatorium Kirilowii TURCZ.	*Sawahiyodori.*
Gerbera Anandria SCH. BIP.	*Senbonyari.*
Gnaphalium japonicum THUNB.	*Chichikogusa.*
Gnaphalium multiceps WALL.	*Hahakogusa.*
Inula britanica DC.	*Oguruma.*
Inula salicina LINN.	*Kasensō.*
Lactuca debilis MAXIM.	*Jishibari.*
Lactuca denticulata MAXIM.	*Yakushisō.*
Lactuca stolonifera BENTH.	*Iwanigana.*
Lactuca Thunbergiana MAXIM.	*Nigana.*
Lactuca versicolor SCH. BIP.	*Takasagosō.*
Ligularia clivorum MAXIM.	*Dakebuki.*
Ligularia sibirica CASS.	*Otakarakō.*
Macroclinidium robustum MAXIM.	*Kashiwabahaguma.*
Pertya scandens SCH. BIP.	*Nagabano-kōyabōki.*

Picris hieracioides LINN. var. japonica RGL.	*Kōzorina.*
Saussurea Maximowiczii HERD.	*Miyako-azami.*
Senecio campestris DC.	*Sawa-oguruma.*
Senecio flammeus DC.	*Kōrinkwa.*
Senecio nemorensis LINN. var. Fuchsii KOCH.	*Kion.*
Serratula coronata LINN.	*Tamurasō.*
Solidago Virga-aurea LINN.	*Akinokirinsō.*

b) *Deciduous broad leaved tree-Region.*

Next to the prairie-region, comes the deciduous tree-region. As we have stated above, it is most abundantly formed on the south side, while it is the least so on the north, in consequence of the climatic characters which we have already alluded to. Under this heading, therefore, it is sufficient for us to consider its southern formation.

Fig. 19. *Fagus* and *Quercus* in the winter.

The lower boundary of this region lies, on the south-east, at an altitude of 870 m; but on the due south side, it climbs as high as 1400 m., and on some parts it comes up even to altitudes of 1600 m.–1700 m. On the due south where this formation attains its most luxuriant growth, we see the gigantic forest principally formed of *Fagus*, *Zelkowa* and *Quercus*, with thick under-growth, the ground being sufficiently capable of holding water. The tall *Fagus* with climbing *Rhus* and *Euonymus* reaching to the top of the tree, the *Stewartia* bare of

Fig. 20. *Fagus* and *Quercus* in the summer.

bark, the thick foliage of *Quercus* and various shrubs forming a jungle over the under-growth,——all collectively form the most beautiful forest on this side.

A glance over this formation at the height of 1900 m. on the southern flank, will give us a general idea of it. The following description is drawn up from observations at the spot where I crossed in the summer of 1907. Over a little open space with the promontory of the Conifer-forest on the left side (east), the deciduous forest stretches away to the south upon a slope, so gentle that it seems at a distance perfectly flat, and the light green color of its foliage, in contrast with the dark green of the Conifers above, makes the forest still more remarkable. Far away, the prairie formation extends till it melts into the rice fields some miles distant. The several aspects of the vegetation of this region on the different sides are given in the accompanying photographs.

The forest-flora of this region is as follows:—

Juglandaceæ.

Juglans Sieboldiana MAXIM.	*Kurumi.*
Pterocarya rhoifolia S. et Z.	*Sawagurumi.*

Betulaceæ.

Betula alba LINN. var. vulgaris DC.	*Shirakanba.*
Betula Ermanni CHAM. var. nipponica MAXIM.	*Takekamba.*

Fagaceæ.

Fagus sylvatica LINN. var. Sieboldi MAXIM.	*Bunanoki.*
Quercus aliena BLUME.	*Naragashiwa.*
Quercus crispula BLUME.	*Ōnara.*

Magnoliaceæ.

Magnolia hypoleuca S. et Z.	*Hōnoki.*

Trochodendraceæ.

Cercidiphyllum japonicum S. et Z.	*Katsura.*

Rosaceæ.

Pyrus aucuparia GÆRTN. var. japonica MAXIM.	*Miyamananakamado.*

Rutaceæ.

Phellodendron amurense RUPR.	*Kihada.*

Aceraceæ.

Acer pictum THUNB.	*Tsutamomiji.*
Acer palmatum THUNB.	*Yamamomiji.*

Sabiaceæ.

Meliosma myriantha S. et Z.	*Awabuki.*

Tiliaceæ.

Tilia cordata MIQ.	*Shinanoki.*

Theaceæ.

Stewartia monadelpha S. et Z.	*Himeshara.*
Stewartia pseudocamellia MAXIM.	*Natsutsubaki.*

Cornaceæ.

Cornus ignorata C. KOCH.	*Kumanomizuki.*
Cornus Kousa BUERG.	*Yamabōshi.*
Cornus macrophylla WALL.	*Mizuki.*

Clethraceæ.

Clethra barbinervis S. et Z.	*Ryōbu.*

Oleaceæ.

Fraxinus longicuspis S. et Z.	*Ao-tago.*
Fraxinus Sieboldiana BLUME.	*Shiōji.*

Caprifoliaceæ.

Viburnum furcatum BLUME. *Mushikari* or *Ōbakamenoki.*

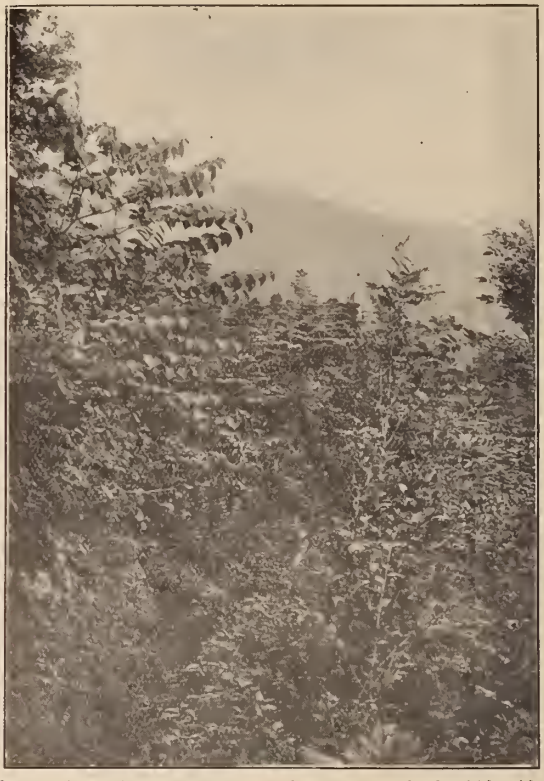


Fig. 21. Forest of broad leaved trees and Conifers, on the Yoshida side, about 1800 m. above the sea. *Viburnum furcatum* BLUME on the left, *Pyrus aucuparia* GÆRTN. var. *japonica* MAXIM. on the right, and backwards *Picea polita* CARR. *Abies brachyphylla* MAXIM. are more or less distinctly visibile. (From the Atlas of Japanese Vegetation, by permission of Prof. M. MIYOSHI.)

The under-growth of the forests, shrubs and herbs found in the open places are as follows :—

Polypodiaceæ.

Adiantum pedatum LINN. *Kujakushida.*
Aspidium muticum FR. et SAV. *Miyamakanawarabi.*

Athyrium nipponicum BAKER.	*Inuwarabi.*
Microlepia Wilfordi MOORE.	*Ōrenshida.*
Nephrodium dilatatum DESV.	*Shiranewarabi.*
Nephrodium Filix-mas RICH.	*Memma, Oshida, Miyama-inode.*
Nephrodium Filix-mass RICH. var. lacerum CHRIST.	*Kumawarabi.*
Nephrodium Filix-mass. RICH. var. polylepis MAKINO.	*Miyamakumawarabi.*
Nephrodium Filix-mas Rich. var. Sabæi CHRIST.	*Miyama-itachishida.*
Nephrodium glanduligerum MAKINO.	*Hashigoshida.*
Nephrodium hirtipes HOOK.	*Iwahego.*
Nephrodium Maximowiczii BAKER.	*Nantaishida.*
Nephrodium Phegopteris BAUMG.	*Miyamawarabi.*
Nephrodium thelypteris DESV.	*Himeshida* or *Shorima.*
Polypodium lineare THUNB. var. distans MAKINO.	*Miyamanokishinobu.*
Polypodium lineare THUNB. var. Onœi MAKINO.	*Himenokishinobu.*
Polypodium senanense MAXIM.	*Miyama-uraboshi.*
Polypodium trichomanoides SW.	*Ōkuboshida.*
Polystichum tripteron SM.	*Shūmokushida.*

Hymenophyllaceæ.

Hymenophyllum Wrightii BOSCH.	*Kokeshinobu.*
Trichomanes parvulum POIR.	*Uchiwagoke.*

Osmundaceæ.

Osmunda cinnamomea LINN.	*Yamadorizenmai.*

Lycopodiaceæ.

Lycopodium cryptomerinum MAXIM.	*Sugiran* or *Iwasugi.*
Lycopodium serratum THUNB.	*Tōgeshiba.*

Gramineæ.

Agrostis canina LINN.	*Takanenukabo.*
Agrostis flaccida HACK.	*Miyamanukabo.*
Agrostis perennans TUCK.	*Yamanukabo.*
Brylkinia caudata FR. SCHM.	*Hajigaeri.*

Calamagrostis sachalinensis Fr. Schm.	*Himenogariyasu.*
Calamagrostis villosa Mut. var. Langsdorffii Hack.	*Iwagariyasu.*
Festuca ovina Linn.	*Ushinokegusa.*
Milium effusum Linn.	*Ibukinukabo.*
Miscanthus Matsumuræ Hack.	*Kariyasumodoki.*
Muehlenbergia japonica Steud. var. hakonensis Hack.	*Tachinezumigaya.*
Sasa albo-marginata Mak. et Shib.	*Kumazasa.*
Sasa paniculata Mak. et Shib.	*Nemagaridake.*

Cyperaceæ.

Carex Dœnitzii Boeck.	*Kotanukiran.*
Carex pseudo-conica F. et S.	*O-itosuge.*
Carex remota Linn.	*Yabusuge.*

Juncaceæ.

Juncus Maximowiczii Buch.	*Ito-inunohige.*
Luzula campestris DC. var. sudetica Clark.	*Miyamasuzumenohie.*

Stemonaceæ.

Croomia japonica Miq.	*Nabewari.*

Liliaceæ.

Hosta cœrulea Tratt. var. lancifolia Matsum.	*Mizugibōshi.*
Hosta Sieboldiana Engl. var. longipes Matsum.	*Iwagibōshi.*
Lilium avenaceum Fisch.	*Takeshimayuri.*
Lilium Hansoni Bak.	*Kurumayuri.*
Maianthemum Convallaria Wigg. et Roth.	*Maizurusō.*
Metanarthecium foliatum Maxim.	*Nebarinogiran.*
Paris quadrifolia Linn. var. obovata Rgl.	*Kurumabatsukubanesō.*
Paris tetraphylla A. Gr.	*Tsukubanesō.*
Polygonatum latifolium Desf. var. commutatum Bak.	*Narukoyuri.*

Polygonatum officinale ALL.	*Amadokoro.*
Streptopus ajanensis TILING. var. japonica MAXIM.	*Takeshimaran.*
Trillium Smallii MAXIM.	*Enreisō.*
Veratrum album LINN. var. Lobelianum BAK. f. japonica BAK.	*Baikeisō.*

Orchidaceæ.

Cypripedium debile REICHB f.	*Ko-atsumorisō.*
Ephiphianthus sachalinensis REICH. f.	*Ko-ichiyōran.*
Epipactis papillosa F. et S.	*Yezosuzuran.*
Gymnadenia cucullata REICH. f.	*Miyamamojizuri.*
Gymnadenia cyclochia KORS.	*Kamomeran* or *Ichiyōchidori.*
Liparis Krameri F. et S.	*Jigabachisō.*
Listera cordata R. BR.	*Kofutabaran.*
Listera Eschscholtziana CHAM.	*Futabaran.*
Platanthera angustifolia REICH.	*Mukagosō.*
Platanthera mandarinorum REICH. f.	*Yamasagisō.*
Platanthera ophryoides FR. SCHM.	*Kisochidori.*
Platanthera Yatabei MAXIM.	*Hosobanokisochidori.*
Oberonia japonica MAXIM.	*Yōrakuran.*
Orchis Chondradenia MAKINO.	*Onoiran.*
Yoania japonica MAXIM.	*Shōkiran.*

Salicaceæ.

Salix gracilistyla MIQ.	*Nekoyanagi.*

Betulaceæ.

Corylus rostrata AIT. var. Sieboldiana MAXIM.	*Tzunohashibami.*

Urticaceæ.

Laportea bulbifera WEDD.	*Mukago-irakusa.*

Caryophyllaceæ.

Stellaria nemorum LINN. var. Bungeana MAXIM.	*Miyamahakobe.*

Ranunculaceæ.

Aconitum Fischeri REICH.	*Torikabuto.*
Aconitum lycoctonum LINN.	*Reizinsō.*
Aquilegia glandulosa FISCH.	*Yamaodamaki.*
Cimicifuga biternata MIQ.	*Miyamashōma.*
Cimicifuga japonica SPR.	*Mitsubashōma.*
Clematis alpina MILL.	*Miyamahanshōzuru.*
Coptis brachypetala S. et Z. var. pygmæa MIQ.	*Hosoba-ōren.*
Isopyrum stoloniferum MAXIM.	*Tsurushirokanesō.*
Thalictrum aquilegifolium LINN.	*Karamatsusō.*

Papaveraceæ.

Corydalis decumbens PERS.	*Yabu-engosaku.*
Corydalis Pallida PERS.	*Miyamakikeman.*

Fig. 22. *Rodgersia podophylla* A. GRAY, and *Cimicifuga fœtida* LINN. var. *simplex* HUTH., on the Yoshida side, about 17500 m. above the sea. The former plant is easily distinguishable in having its large whorled leaves, and the latter is very remarkable for its long spikes of white flowers. (From the Atlas of Japanese Vegetation, by permission of Prof. M. MIYOSHI.)

Saxifragaceæ.

Astilbe Thunbergii MIQ.	*Toriashishōma.*
Chrysosplenium macrostemon MAXIM.	*Miyamanekonomesō.*
Hydrangea Hortensia DC. var. acuminata A. GR.	*Sawa-ajisai.*
Hydrangea Thunbergii SIEB.	*Amachanoki.*
Philadelphus coronarius LINN. var. Satsumi MAXIM.	*Satsuma-utsugi.*
Ribes alpinum LINN. var. japonicum MAXIM.	*Zarikomi.*
Ribes ambiguum MAXIM.	*Yashabishaku.*
Rodgersia podophylla A. GR.	*Yamaguruma.*
Schizophragma hydrangeoides S. et Z.	*Iwagarami.*
Tiarella polyphylla DON.	*Zutayakushū.*

Rosaceæ.

Amelanchier asiatica C. COCH.	*Zaifuriboku.*
Fragaria elatior EHRH.	*Miyamahebi-ichigo.*
Pourthiæa villosa DCNE.	*Kamatsuka.*
Prunus incisa THUNB.	*Mamezakura.*
Pyrus alnifolia LINN.	*Azukinashi.*
Pyrus Aria EHRH. var. Kamaonensis WALL.	*Urajironoki.*
Pyrus aucuparia GÆRTN. var. japonica MAXIM.	*Miyamananakamado.*
Pyrus Matsumuræ MAKINO.	*Nanakamado.*
Pyrus sambucifolia CH. et SCHL.	*Takanenanakamado.*
Rosa Luciæ FR. et ROCH.	*Hai-ibara.*
Rubus morifolius SIEB.	*Kumaichigo.*
Rubus rosifolius SM.	*Bara-ichigo.*
Rubus Sieboldii BL.	*Hōroku-ichigo* or *Oni-ichigo.*
Spiræa bulbata MAXIM.	*Koshimotsuke.*
Spiræa japonica LINN. f.	*Shimotsuke.*

Geraniaceæ.

Geranium criostemon FISCH.	*Gunnaifuuro.*
Geranium Wilfordi MAXIM.	*Kofuuro.*

Oxalidaceæ.

Oxalis acetosella LINN.	*Miyamakatabami.*

Rutaceæ.

Zanthoxylum schinnifolium S. et Z.	*Inuzanshū.*

Anacardiaceæ.

Rhus toxicodendron LINN. var. radicans MIQ.	*Tsuta-urushi.*

Aquifoliaceæ.

Ilex geniculata MAXIM.	*Furinmumemodoki.*
Ilex macropoda MIQ.	*Aohada.*

Celastraceæ.

Euonymus alata K. KOCH. var. subtriflora F. et S.	*Komayumi.*
Euonymus melanantha F. et S.	*Sawadatsu* or *Aogiku-mayumi.*
Euonymus sachalinensis MAXIM.	*Murasaki-tsuribana.*

Staphyleaceæ.

Staphylea Bumalda S. et Z.	*Mitsuba-utsugi.*

Aceraceæ.

Acer argutum MAXIM.	*Asanohakaede.*
Acer carpinifolium S. et Z.	*Yamasheba.*
Acer cratægifolium S. et Z.	*Urikaede.*
Acer japonicum THUNB.	*Hauchiwakaede.*
Acer micranthum S. et Z.	*Kominekaede.*
Acer nikœnse MAXIM.	*Chōjanoki.*
Acer purpurascens S. et Z.	*Kajikaede.*
Acer rufinerve S. et Z.	*Urihadakaede.*
Acer Sieboldianum MIQ. var. microphyllum MAXIM.	*Ko-hauchiwakaede.*
Acer spicatum LAM. var. ukurunduense MAXIM.	*Ogarabana.*

Balsaminaceæ.

Impatiens nolitangere LINN.	*Ki-tsurifune.*
Impatiens Textori MIQ.	*Tsurifunesō.*

Vitaceæ.

Vitis Coignetiæ PULL.	*Gaiebu* or *Yamabudō.*

Dilleniaceæ.

Actinidia arguta PLANCH.	*Sarunashi.*
Actinidia Kolomikta MAXIM.	*Miyamamatatabi.*
Actinidia polygama MIQ.	*Matatabi.*

Violaceæ.

Viola Bissetii MAXIM.	*Nagabasaishinsumire.*
Viola japonica LANGSD.	*Kosumire.*
Viola Maximowicziana MAKINO.	*Komiyamasumire.*
Viola pinnata LINN. var. chærophylloides RGL.	*Ezo-sumire.*
Viola variegata FISCH.	*Miyamasumire.*
Viola verecunda A. GR. var. semilunaris MAXIM.	*Agisumire.*

Onagraceæ.

Circæa alpina LINN.	*Miyamatanitade.*
Circæa erubescens FR. et SAV.	*Tanitade.*
Epilobium dahuricum FISCH.	*Hime-akabana.*
Epilobium japonicum HASSK.	*Iwa-akabana.*

Araliaceæ.

Aralia cordata THUNB.	*Wudo.*
Acanthopanax sciadophylloides F. et S.	*Koshiabura.*
Aralia repens (MAXIM.) MAKINO.	*Tochibaninjin.*

Umbelliferæ.

Angelica Florenti F. et S.	*Shiraneninjin.*
Angelica polymorpha MAXIM.	*Shiranesenkiu.*
Carum Tanakæ FR. et SAV.	*Iwasentōsō.*
Seseli Libanostis KOCH.	*Ibukibōfū.*
Sium Ninsi LINN.	*Mukagoninjin.*

Fig. 23. Forest of deciduous trees, on the Yoshida side, about 1500 m. above the sea. *Aralia cordata* THUNB. on the right, *Fraxinus longicuspis* SIEB. et ZUCC. on the left, *Fagus*, *Quercus*, *Deutzia*, etc. are seen on the background. (From the Atlas of Japanese Vegetation by permission of Prof. M. MIYOSHI.)

Cornaceæ.

Cornus Kousa BUERG.	*Yamaboshi.*

Pirolaceæ.

Chimaphila japonica MIQ.	*Mumegasasō.*
Monotropa hypopitys LINN. var. hirsuta ROTH.	*Shakujōbana.*

Monotropa uniflora LINN.	*Ginryōsō.*
Pirola elliptica NUTT. var. minor MAXIM.	*Kobano-ichiyakusō.*
Pirola media SW.	*Maruba-ichiyakusō.*
Pirola renifolia MAXIM.	*Jinyō-ichiyakusō.*
Pirola rotundifolia L. var. albiflora MAXIM.	*Ichiyakusō.*
Pirola secunda LINN.	*Ko-ichiyakusō.*

Ericaceæ.

Andromeda campanulata MIQ.	*Fūrintsutsuji.*
Gaultheria adenothrix MAXIM.	*Akamono.*
Leucothœ Grayana MAXIM.	*Hanahirinoki.*
Menziezia pentandra MAXIM.	*Koyōrakutsutsuji.*
Pieris japonica D. DON.	*Asebi.*
Rhododendron dilatatum MIQ.	*Mitsubatsutsuji.*
Vaccinium bracteatum THUNB.	*Shashanpo.*

Diapensiaceæ.

Schizocodon soldanelloides S. et Z.	*Iwakagami.*

Primulaceæ.

Trientalis europæa LINN.	*Tsumatorisō.*
Primula japonica A. GRAY.	*Kurinsō.*

Symplocaceæ.

Symplocos cratægoides HAM.	*Sawafutagi.*

Styracaceæ.

Styrax japonica S. et Z.	*Egonoki.*

Oleaceæ.

Ligustrum Ibota SIEB.	*Ibota.*
Ligustrum Ibota SIEB. var. ciliare MAXIM.	*Miyama-ibota.*

Gentianaceæ.

Halenia sibirica BORNK.	*Hana-ikari.*

Labiatæ.

Calamintha multicaulis MAXIM.	*Miyamatōbana.*
Plectranthus inflexus VAHL.	*Yamahakka.*

Scrophulariaceæ.

Lathræa japonica MIQ.	*Yama-utsubo.*
Pedicularis gloriosa BISSET et MOOR.	*Hankwai-azami.*
Pedicularis resupinata LINN.	*Shōgamagiku.*

Gesneraceæ.

Conandron ramondioides S. et Z.	*Iwatabako.*

Rubiaceæ.

Galium brachypodion MAXIM.	*Marubanoyotsubamugura.*
Galium paradoxum MAXIM.	*Yotsubamugura.*
Pseudopyxis longituba FR. et SAV.	*Shirobana-inamorisō.*

Caprifoliaceæ.

Diervilla japonica DC.	*Beniutsugi.*
Viburnum dilatatum THUNB.	*Gamazumi.*
Viburnum furcatum BLUME.	*Mushikari.*
Viburnum Wrightii MIQ.	*Miyamagamazumi.*

Valerianaceæ.

Patrinia palmata MAXIM.	*Kinreikwa.*
Patrinia villosa JUSS.	*Otoko-eshi.*

Campanulaceæ.

Adenophora remotiflora MIQ.	*Sobana.*
Adenophora verticillata FR. et SAV.	*Tsuriganeninjin.*
Adenophora polymorpha LEDEB. var. Lamarckii TRAUTV.	*Himeshajin.*
Peracarpa circæoides H. FEE.	*Sawagikyō.*
Phyteuma japonicum MIQ.	*Shideshajin.*

Compositæ.

Adenocaulon bicolor HOOK.	*Nobuki.*
Ainsliæa apiculata SCH.-BIP.	*Kikkōhaguma.*
Aster dimorphophyllus FR. et SAV.	*Tateyamagiku.*
Aster scaber THUNB.	*Shirayamagiku.*

Aster trinervius ROXB.	*Yamashirogiku.*
Cacalia adenostylioides FR. et SAV.	*Kanikōmori.*
Cacalia delphiniifolia SIEB. et ZUCC.	*Momijisō.*
Cacalia farfaræfolia SIEB. et ZUCC. var. farfaræfolia MAXIM.	*Miyamakōmorisō.*
Cacalia hastata LINN. var. glabra LEDEB.	*Yobusumaso.*
Carpesium triste MAXIM.	*Gankubiyabutabako.*
Cirsium spicatum (MAXIM.)	*Yama-azami.*
Lactuca Raddeana MAXIM.	*Yamanigana.*
Macroclinidium robustum MAXIM.	*Kashiwabahaguma.*
Pertya scandens SCH.-BIP.	*Nagabanokōyabōki.*
Prenanthes acerifolia (MAXIM.)	*Fuku-ōsō.*
Saussurea Maximowiczii HERD.	*Miyakoazami.*
Saussurea Tanakæ FR. et SAV. var. phyllolepis MAXIM.	*Tōhiren.*
Saussurea triptera MAXIM.	*Yahazuhigotai.*
Senecio nemorensis LINN. var. Fuchsii KOCH.	*Kion.*
Solidago Virga-aurea LINN.	*Akinokirinso.*

Fig. 24. Coniferous forest on the north side of the mountain; *Picea*, and *Abies*, with a few deciduous trees on the right. (After a photograph.)

Fig. 25. Coniferous forest on the top of the Konnō pass, about 1500 m. above the sea. (Photographed by the author.)

c) *Ever-green Conifer-Region.*

This is the most abundant vegetation on the mountain. As shown in the annexed map, the region forms a nearly complete belt around the middle of the mountain, the only intrusion of volcanic ashes being on the eastern side where this formation has almost disappeared. On the south, the formation begins at 1550 m. and stretches up to an elevation of 2300 m. On the north, it comes a little lower than on the south. Distant views of the region on the north and south are seen in Plates I., and VIII. As we have previously stated, there are some Conifer formations which come down to the prairie and are even isolated in it; such as the Aogigahara formation, the Kenmarubi formation, and the pure stand of *Picea polita* near lake Yamanaka.

On the south side of Part I., (cf. the foregoing sketch) on the lower boundary of this formation, there are found a few

Pl. VII. View of Mt. Fuji, seen from lake Saiko. (Nishi-lake.) (After a sketch by the author.)

Abies firma. Ascending to an altitude of 1500 m., we see that the prevailing Conifer in this region is *Picea Veitchii* with a small amount of *Chamæcyparis, Tsuga* and *Picea hondōensis.* In the Kamiide district of the same part, the predominating tree is *Picea hondōensis* with the addition of some *Tsuga* and *Abies umbellata.* Going over to the due west side, *Picea Veitchii* begins to increase, occupying 50% of the whole, leaving 30% to *Tsuga*, and 20% to *Picea hondōensis.* Coming up to Part IV., we see here the famous forest of Aogigahara,—a grand growth stretching over the large area of 14 km. from

Fig. 26. Mt. Fuji from lake Shōji, the Aogigabara forest is seen at the base of the mountain, and on the left the promontory of the tertiary formation is covered with thin clumps of *Pinus densiflora.* The pine on the left in the foreground is *P. densiflora.* (Photographed by the author.)

its upper to its lower end, and 5 km. from side to side. Although some local differences may be observed here, it is the *Tsuga* that controls the vegetation by so much as eighty percent, with much under-growth and with some additions of *Chamœcyparis*. This *Chamœcyparis* being tolerant of shade, can grow even in the dense forest of *Tsuga*. *Picea polita* and *Pinus parviflora* also intermingle here.

Fig. 27. Conifer forest of Aogigahara, near the top of the Konno pass. Conifers in the background are *Picea polita*, and *Tsuga Sieboldii*; the deciduous-tree in the foreground is *Alnus incana*. (Photographed by the author.)

Turning to the due north side, the Conifer formation stretches from 2000 m. down to 1500 m.; and presents a grand distant view making a belt around the peak. The predominating tree on this side is *Tsuga* especially in the vicinity of Maruyama, i.e. 70% of *Tsuga* and 20% of *Larix*. A little eastwards from here, we come to Yakikomi (cf. map.) where *Larix* predominates to such an extent that it ranges from 1500 m. up

Fig. 28. The same; *Picea polita*. (Photographed by the author.)

to 2200 m., thus intercepting this ever-green formation. This *Larix* formation is clearly distinguishable by its fresh green colour in the early spring.

Moving to the eastwards, we see that the forest gradually becomes thinner. Some deciduous trees appear below the height of 1500 m. They are *Fagus*, *Alnus*, and a very large quantity of *Sophora japonica* LINN. On the due east side i.e. the Subashiri side, *Larix* attains its most luxuriant growth, and extends through all tree regions.

On the Gotemba side, the Conifer formation is the least developed and in some parts there are even almost no Conifers at all; but in other parts there is a pure red pine formation which ranges from 800 m. up to 1200 m.

Fig. 29. Ever-green Conifer formation on the Subashiri side.
(Photographed by the author.)

The forest trees found in this region are as follows:—

Coniferæ.

Abies homolepis S. et Z.	*Dakemomi.*
Abies Veitchii LINDL.	*Shirabi.*
Abies umbellata MAYR.	*Urajiromomi.*

Fig. 30. Coniferous forest on the north side of the mountain, *Picea*, *Abies* and a few *Pyrus sambucifolia* on the right side. (After a photograph.)

Larix leptolepis GORD.	*Karamatsu.*
Picea Alcockiana CARR.	*Iramomi.*
Picea ajanensis FISCH.	*Ezomatsu.*
*Picea hondōensis MAYR.	*Tōhi.*
Picea polita CARR.	*Harimomi.*
Pinus parviflora SIEB et ZUCC.	*Himekomatsu.*
Tsuga diversifolia MAXIM.	*Kometsuga.*
Tsuga Sieboldiana CARR.	*Tsuga.*

The undergrowth in this formation is almost the same as in the preceding formation.

d) *Larix region.*

Above a 2300 m. elevation of the Conifer region, the wind is too strong, cold, and dry for the growth of the ever

* I do not think that *Picea hondōensis* MAYR should be different from *Picea ajanensis* FISCH. The differences pointed out by MAYR in his "Abietineæ von Japan" is not very clear, and perhaps they should be regarded as individual characters.

green Conifers, and they give way to *Larix* which there forms the deciduous Conifer formation. *Larix*, being deciduous in the winter time, is tolerant of extreme dryness and severe cold. On the south, this *Larix* is found in as high as 2900 m. elevation. There it is seen clinging firmly to the ground, so as to prevent its being swept away by the wind as *Pinus pumila* does under the same conditions. This *Pinus* is very common in the alpine regions of Japan, but it is entirely absent on this mountain.

Fig. 31. *Larix leptolepis* on the western side (winter). (Photographed by the author.)

The plant-species found in this formation are almost the same as those in the following formation.

e) Salix-Alnus Region.

At about 2500 m. elevation, the *Larix* formation gives way to the shrubbery-formation, such as *Salix, Alnus, Betula* and others. On the south this formation begins at 2600 m., mixed with *Larix*. On the north, it comes a little lower. The plants found in this region are as follows :—

Polypodiaceæ.

Nephrodium gracilescens BLUME. var. glanduligerum BAKER.	*Hashigoshida.*
Nephrodium Phegopteris BAUMG.	*Miyamawarabi.*

Coniferæ.

Juniperus nipponica MAXIM.	*Miyamanezu.*
Larix leptolepis GORD.	*Karamatsu.*

Cyperaceæ.

Carex Dœnitzii BŒCK.	*Kotanukiran.*
Carex Wrightii BŒCK. BULL.	*Himisuge.*

Gramineæ.

Agrostis canina LINN.	*Iwagariyasu.*
Glyceria tonglensis CLARK.	*Dojōtsunagi.*
Miscanthus Matsumuræ HACK.	*Kariyasumodoki.*

Salicaceæ.

Salix Caprea LINN.	*Bakkoyanagi.*
Salix Sieboldiana BL.	*Iwayanagi.*

Betulaceæ.

Alnus incana WILLD. var. emarginata MATSUM.	*Yakazuhannoki.*
Alnus viridis DC. var. sibirica RGL.	*Miyamahannoki.*
Betula alba LINN. var. vulgaris DC.	*Shirakanba.*
Betula Ermanni CHAM. var. nipponica MAXIM.	*Takekanba.*

Polygonaceæ.

Polygonum cuspidatum S. et Z.	*Itadori.*
Polygonum polymorphum LEDEB. var. japonicum MAXIM.	*Ontade.*

Caryophyllaceæ.

Stellaria florida FISCH. var. angustifolia MAXIM.	*Iwatsumekusa.*

Ranunculaceæ.

Aquilegia glandulosa FISCH.	*Yamaodamaki.*
Clematis alpina MILL.	*Miyamahanshōzuru.*

Cruciferæ.

Arabis serrata F. et S.	*Fujihatazao.*

Rosaceæ.

Aruncus silvester KOSTEL.	*Yamabukishōma.*
Fragaria elatior EHRH.	*Shirobanahebiichigo.*
Pyrus sambucifolia CH. et SCHL.	*Takane-nanakamado.*
Rosa acicularis LINDL.	*Takanebara.*
Rubus japonicus FOCK.	*Goyō-ichigo.*
Spiræa bracteata MAXIM.	*Iwashimotsuke.*
Spiræa bulbata MAXIM.	*Koshimotsuke.*

Umbelliferæ.

Angelica Florenti F. et S.	*Shiraneninjin.*
Angelica hakonensis MAXIM.	*Iwaninjin.*
Carum Tanakæ FR. et SAV.	*Iwasentōsō.*

Ericaceæ.

Leucothoe Grayana MAXIM.	*Hanahirinoki.*
Menziezia pentandra MAXIM.	*Koyōrakutsutsuji.*
Rhododendron Metternichii S. et Z.	*Shakunange.*
Vaccinium Vitis-idæa LINN.	*Koke-momo.*
Tripetaleia paniculata S. et Z.	*Hotsutsuji.*

Pirolacæ.

Pirola media Sw.	*Maruba-ichiyakusō.*

Diapensiaceæ.

Schizocodon soldanelloides S. et Z.	*Iwakagami.*

Oleaceæ.

Ligustrum Ibota Sieb. var. ciliare Maxim.	*Miyama-ibota.*

Valerianaceæ.

Patrinia palmata Maxim.

Orobanchaceæ.

Boschniakia glabra C.A. Mey.	*Oniku.*

Campanulaceæ.

Adenophora remotiflora Miq.	*Sobana.*
Adenophora verticillata Fr. et Sav.	*Tsuriganeninjin.*

Compositæ.

Aster trinervius Roxb.	*Yamashirogiku.*
Ainsliæa apiculata Sch.-Bip.	*Kikkōhaguma.*
Cacalia adenostylioides Fr. et Sav.	*Kanikōmori.*
Cacalia delphiniifolia Sieb. et Zucc.	*Momijisō.*
Cacalia farfaræfolia Sieb. et Zucc. var. farfaræfolia Maxim.	*Miyamakōmorisō.*
Saussurea Maximowiczii Herd.	*Miyako-azami.*
Saussurea triptera Maxim.	*Yahazuhigotai.*
Solidago Virga-aurea Linn.	*Akinotamurasō.*

f) Higher Grass Region.

Above the *Salix-Alnus* formation, there comes a small area of higher (alpine) grass formation. This formation is, however,

very poor on this mountain, owing to its recent habitation. The plants found here are as follows:—

Ophioglossaceæ.

Botrychium Lunaria Sw.	*Himehanawarabi* or *Hebinoshita.*

Gramineæ.

Deschampsia caryophyllea L.	*Nukasusuki.*

Cyperaceæ.

Carex Dœnitzii Bœck.	*Kotanukiran.*
Carex stenantha Fr. et Sav.	*Iwasuge.*
Carex Wrightii Fr.	*Himesuge.*

Orchidaceæ.

Orchis Chondradenia Makino.	*Onoe-ran.*
Plantanthera conopsea Schlecht.	*Chidorisō.*

Fig. 32. *Polygonum cuspidatum* Sieb et Zucc., on the Subashiri side, about 2000 m. above the sea. (From the Atlas of Japanese Vegetation, by permission of Prof. M. Miyoshi.)

Salicaceæ.

Salix Sieboldiana BL.	*Iwayanagi.*

Betulaceæ.

Alnus incana WILLD. var. emarginata MATSUM.	*Yahazuhannoki.*
Alnus viridis DC. var. sibirica RGL.	*Miyamahannoki.*

Polygonaceæ.

Polygonum cuspidatum S. et Z.	*Itadori.*
Polygonum debile MEISN. var. triangulare MEISN.	*Miyamatanisoba.*
Polygonum polymorphum. LEDEB. var. japonicum MAXIM.	*Ontade.*

Caryophyllaceæ.

Stellaria florida FISCH. var. angustifolia MAXIM.	*Iwatsumekusa.*

Ranunculaceæ.

Clematis alpina MILL.	*Miyamahanshōzuru.*

Cruciferæ.

Arabis serrata F. et S.	*Fujihatazao.*

Leguminosæ.

Astragalus adsurgens PALL.	*Murasakimomenzuru.*
Astragalus reflexistipulus MIQ.	*Momenzuru.*
Hedysarum esculentum LEDEB.	*Tateyama-ōgi* or *Iwa-ōgi.*

Ericaceæ.

Cassiope licopodioides DON.	*Iwahige.*
Leucothœ Grayana MAXIM.	*Hanahirinoki.*
Vaccinium Vitis-idæa LINN.	*Kokemomo.*

Pirolaceæ.

Pirola media Sw.	*Maruba-ichiyakusō.*

Diapensiaceæ.

Schizocodon soldanelloides S. et Z.	*Iwakagami.*

Compositæ.

Artemisia pedunculosa Miq.	*Miyama-otokoyomogi.*
Circium purpuratum (Maxim.)	*Fuji-azami.*
Solidago Virga-aurea Linn.	*Akinokirinsō.*

Fig. 33. *Cirsium purpuratum* (Maxim.), on the Subashiri side, about 2000 m. above the sea. (From the Atlas of Japanese Vegetation by permission of Prof. M. Miyoshi).

From 3220 m. upwards, there is no vegetation except a few mosses such as *Racomitrium canescens* Brid., *Stereodon brachycarpus* Mitt. *S. plicatulus* Lindb., and a few lichens. On the

south, this grass region extends as high as 3220 m.; but on the north, it is limited under 3000 m. From this elevation upwards, the mountain is entirely barren and there is nothing to represent vegetation except a few lichens and mosses.

Fig. 34. Grass region on the north side of the mountain. (After a photograph).

V. GENERAL ASPECT OF THE FLORA OF THE MOUNTAIN.

Having arranged the plants according to their regions, let us consider the general aspect of the flora of the mountain. Summarizing all the flora, it is found to contain 900 species belonging to 125 families. The following table shows the number of species found in each region, and the sum of the species belonging to each family.

Families. \ Regions.	Prairie.	Forest regions, including deciduous broad leaved trees, and evergreen conifers.	Shrubbery regions including *Larix* and *Alnus Salix* regions.	Higher grass region.	*Total number of species belonging to each family.
Hymenophyllaceæ		2			2
Polypodiaceæ	48	19	2		57
Schizæaceæ	1				1
Osmundaceæ	1	1			2
Ophioglossaceæ	1			1	2
Equisetaceæ	1				1
Lycopodiaceæ	2	2			3
Selaginellaceæ	2				2
Coniferæ	6	11	2		18
Sparganiaceæ	1				1
Potamogetonaceæ	3				3
Alismataceæ	1				1
Hydrocharitaceæ	3				3
Gramineæ	59	12	3	1	66
Cyperaceæ	35	3	2	3	58
Araceæ	3				3
Eriocaulaceæ	1				1
Commelinaceæ	2				2
Pontederiaceæ	2				2
Juncaceæ	3	2			5
Stemonaceæ		1			1
Liliaceæ	22	13			32
Amaryllidaceæ	1				1
Dioscoreaceæ	3				3
Iridaceæ	2				2
Orchidaceæ	10	15		2	25

* It should be understood that there may exist the same species in different regions and therefore the total number of species belonging to each family is the sum of different species represented in different regions, but not the sum of figures given in the different columns.

Regions. / Families.	Prairie.	Forest regions, including deciduous broad leaved trees, and evergreen conifers.	Shrubbery regions including *Larix* and *Alnus Salix* formations.	Higher grass region.	Total number of species belonging to each family.
Saururaceæ	1				1
Chloranthaceæ	2				2
Juglandaceæ		2			2
Salicaceæ	3	1	2	1	5
Betulaceæ	4	3	4	2	9
Fagaceæ	8	3			11
Ulmaceæ	1				1
Moraceæ	2				
Urticaceæ	13	1			13
Loranthaceæ	1				1
Santalaceæ	1				1
Aristolochiaceæ	2				2
Polygonaceæ	14		2	3	17
Chenopodiaceæ	1				1

Fig. 35. View of Mt. Fuji, seen from Ukishimanuma (Ukishima-swamp), forest regions are faintly visible. (after a photograph).

Regions. / Families.	Prairie.	Forest regions, including deciduous broad leaved trees, and evergreen conifers.	Shrubbery regions including *Larix* and *Alnus Salix* formations.	Higher grass region.	Total number of species belonging to each family.
Amarantaceæ	2				2
Portulacaceæ	1				1
Caryophyllaceæ	10	1	1	1	12
Nymphæaceæ	1				1
Ceratophyllaceæ	1				1
Magnoliaceæ	5	1			5
Trochodendraceæ		1			1
Ranunculaceæ	18	9	2	1	22
Lardizabalaceæ	2				2
Berberidaceæ	2				2
Menispermaceæ	1				1
Lauraceæ	7				7
Papaveraceæ	5	2			6
Cruciferæ	7		1	1	8
Crassulaceæ	5				5
Saxifragaceæ	12	10			21
Hamamelidaceæ	1				1
Rosaceæ	26	15	7		43
Leguminosæ	32			3	35
Geraniaceæ	3	2			4
Oxalidaceæ	1	1			2
Linaceæ	1				1
Rutaceæ	4	2			5
Simarubaceæ	1				1
Polygalaceæ	1				1
Euphorbiaceæ	9				9
Callitrichaceæ	1				1
Coriariaceæ	1				1
Buxaceæ	1				2

Families. \ Regions.	Prairie.	Forest regions, including deciduous broad leaved trees, and evergreen conifers.	Shrubbery regions including *Larix* and *Alnus Salix* formations.	Higher grass region.	Total number of species belonging to each family.
Anacardiaceæ	4	1			4
Aquifoliaceæ	4	2			6
Celastraceæ	6	3			9
Staphyleaceæ	1	1			2
Aceraceæ		12			12
Hippocastanaceæ		1			1
Balsaminaceæ	2	2			2
Sabiaceæ	2	1			2
Rhamnaceæ	2				2
Vitaceæ	5	1			5
Tiliaceæ		1			1
Dilleniaceæ		3			3
Theaceæ	2	2			4
Stachyuraceæ	1				1
Guttiferæ	6				6
Elatinaceæ	1				1
Violaceæ	3	6			8
Thymelæaceæ	2				2
Elæagnaceæ	3				3
Lythraceæ	2				2
Onagraceæ	3	4			7
Halorrhagidaceæ	1				1
Araliaceæ	7	3			9
Umbelliferæ	14	5	3		20
Cornaceæ	4	3			5
Clethraceæ	1	1			1
Pirolaceæ		8	1	1	8
Ericaceæ	9	7	5	3	18
Diapensiaceæ		1	1	1	1

Regions. / Families.	Prairie.	Forest regions, including deciduous broad leaved trees, and evergreen conifers.	Shrubbery regions including *Larix* and *Alnus Salix* formations.	Higher grass region.	Total number of species belonging to each family.
Myrsinaceæ	1				1
Primulaceæ	5	2			7
Ebenaceæ			1		1
Symplocaceæ	1	1			1
Styracaceæ	1	1			1
Oleaceæ	4	4	1		7
Loganiaceæ	1				1
Gentianaceæ	5	1			5
Apocynaceæ	1				1
Asclepiadaceæ	3				3
Convolvulaceæ	2				2
Borraginaceæ	2				2
Verbenaceæ	3				3
Labiatæ	20	2			21
Solanaceæ	1				1
Scrophulariaceæ	15	3			16
Orobanchaceæ	1		1		2
Gesneriaceæ	1	1			1
Acanthaceæ	3				3
Plantaginaceæ	1				1
Rubiaceæ	11	3			13
Caprifoliaceæ	13	5			16
Valerianaceæ	2	2	1		3
Dipsaceæ	1				1
Cucurbitaceæ	2				2
Campanulaceæ	5	5	2		9
Compositæ	51	20	8	3	62

Among all the families, the largest is the Gramineæ having 65 species; next come the Polypodiaceæ and the Compositæ, then the Cyperaceæ, the Orchidaceæ, the Ranunculaceæ, and the Umbelliferæ, each having more than 20 species.

Since we have as yet no complete list of other mountain-flora in Japan, we are not yet in a position to make a comparison between the floras of the volcano and other mountains. Still we may be justified in saying that the flora of the present mountain is much more limited than that of other mountains.

VI. INFLUENCE OF FIRE ON THE PRESENT VEGETATION.

On the basal part of the mountain which is near inhabited districts, fires often occur, intentionally or accidentally, and

Fig. 36. View of Mt. Fuji, seen from Yamanaka; dark forests of ever-green conifers are in sharp relief. (Phot. by the author).

sometimes destroy large portions of forest within a few hours. On this mountain, all the present prairie formations, except that of the Hōyé part, where the ground is not yet ready to accept plants, would have been a spacious forest formation but for being constantly burnt and cut over. Cutting is also an active factor in changing forests into prairie. In former times, there were, we are told, rich clumps of trees on the preseut prairie on all sides; but in places near inhabited districts the cutting took place little by little, aud thus in course of time, formed a broad prairie. As far as my observation goes, fire can not extend far upwards from the base. The flanking is much steeper in the middle portion of the slope than in the base, and on the steep flank, a strong wind is always blowing down from the top, thus preventing fires from spreading towards the peak. So, the deciduous forests may be destroyed by fire, but the coniferous forests are generally free from such destruction, owing to their situation. After considering all the cases, I am forced to the conclusion that the present prairie is due to fire, or cutting over, except those parts on the Gotemba side where the volcanic ashes are too fresh to support vegetation.

VII. ABSENCE OF *PINUS PUMILA* ON THE MOUNTAIN.

Ascending as high as 2500 m., one is struck with the singular habit of the *Larix* in clinging to the ground, and stretching its arms over it, owing to the strong wind which here prevails all the year through. It is interesting to observe that this *Larix*, which in the lower elevations has the habit of a tall erect trunk, is here so stunted and crushed down to

the ground as to render it liable to be mistaken for *Pinus pumila*.*

In such high regions, *Pinus pumila* generally ranges over all the mountains of Japan. But on this mountain we have not found this pine thus far. The absence of the *Pinus* is worthy of special attention.

Considering the wind direction on the high mountains, where *Pinus pumila* grows, we find that the prevailing wind is south-westerly. But, of the neighbouring mountains which lie on the south-west of Mt. Fuji, there is none sufficiently high to support the *Pinus*. Therefore, the volcano has had no chance to get the seeds of *Pinus pumila* by the southwesterly wind, and this may be considered to be the cause of the absence of this tree on Mt. Fuji.

VIII. SUMMARY.

In the course of my several visits to the mountain, I have determined the difference of its vegetation according to altitude and exposure. So far as the exposure alone is concerned, the vegetation may be divided into two classes:—the northern and southern. On the northern slope, the conifer predominates, while on the south, the deciduous trees are in control. To ascertain the cause of this divergence, I have examined the physiography of the mountain and found that the divergence may be ascribed to the difference of the climatic factors, and principally to that of the saturation-deficits on the two sides. Next, I have considered the general aspect of the plant-formation, dividing the whole mountain into four parts, and describing

* The *Pinus* was erroneously recorded from the mountain by some authors.

the formations separately. On the southern side, I have found that the forest-formation attains its most luxuriant growth at the 2000 m. elevation. Next, I have dwelt upon each region more particularly and stated the maximum and minimum limitations of the growth. Then, the zonation of plant-regions has been discussed zone by zone. The species of each region are mentioned and the lists of plants given. I have also summarized all the plants in one table, and given a short note on the general aspect of the flora of the mountain. The plants contained in the table are in all 739 species belonging to 96 families. Next, I have considered the effect of fires, and come to the conclusion that the present prairie is mainly due to forest-fires. Lastly, I have considered the cause of the absence of *Pinus pumila* and stated that the wind direction is not suitable for conveying the seeds of the *Pinus* from the neighbouring mountains to the volcano.

[THE END.]

Pl VIII. View of Mt. Fuji, seen from the top of the Misaka-pass (Misaka-tōgé); forest regions are clearly seen between the snow, and prairie, regions. (Sketched from nature by the author, in April 1902.)

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Chamæcyparis pisifera S. et Z.	*Sawara.*
Zelkawa acuminata Pl.	*Keyoki.*

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WITH EXPLANATORY TEXT

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SIVE
ENUMERATIO PLANTARUM OMINIUM

EX INSULIS

KURILE, YEZO, NIPPON, SIKOKU, KIUSIU, LIUKIU, ET FORMOSA HUCUSQUE CORNITARUM

Systematic et Alphabetice

DISPOSITA

ADJECTIS

SYNONYMIS SELECTIS, NOMINIBUS JAPONICIS, LOCIS NATALIBUS.

AUCTORE

J. MATSUMURA.

Botanicus Professore in Universitate Imperiale Tokiense, Horti Directure.

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Botanical Map of Mt. Fuji

Compiled by B. HAYATA

Scale. 1:75,000

LEGEND.

- Prairie region
- Deciduous broad leaved tree region
- Evergreen coniferous region
- *Larix* region
- *Salix*-*Alnus* region
- Higher grass region
- Forest of *Pinus densiflora*
- Bare region

Al. = Forest mainly represented by *Alnus*.

Al. Q. Tax. = Forest composed of *Alnus*, *Quercus* and small stretches of *Taxus cuspidata*.

A. Pi. T. = Forest mainly composed of *Abies* and *Pinus densiflora*, with a small amount of *Fagus*

Cu. B. = Coniferous forest with a considerable amount of *Betula*

F. = Forest mainly represented by *Fagus*

F. Q. = Forest mainly composed of *Fagus* and *Quercus*

F. Q. Pi. = Forest mainly composed of *Fagus* and *Quercus*, with a small amount of conifers.

F. Q. Z. (or F. Z. Q.) = Forest mainly composed of *Fagus* and *Quercus* with a small amount of *Zelkowa acuminata*

F. Cl. = Forest mainly represented by *Fagus*, with a small amount of *Cladrastis amurensis*.

L. = Forest mainly represented by *Larix leptolepis*

L. 100% = Pure stand of *Larix leptolepis*

T. 70% = Forest mainly represented by *Pinus*.

Pi. af. = Afforested areas of *Pinus densiflora*

Pp. = Pure stand of *Picea polita*.

Pi. Q. = Forest mainly represented by *Pinus densiflora* with a small amount of *Quercus serrata*.

Pp. T. = Forest mainly composed of *Picea polita* and *Tsuga diversifolia* and *Siebolds*.

Q. = Forest mainly represented by *Quercus*.

Q. Pi. = Forest mainly represented by *Quercus*, with a small amount of *Pinus densiflora*

T. = Forest mainly composed of *Tsuga Siebolds* and *diversifolia*

T. 50% = Forest represented by *Tsuga*, with some *Abies* and *Picea*

T. 90% = Forest mainly represented by *Tsuga*, with a small amount of *Abies*

T. A. = Forest composed of *Tsuga* and *Abies*.

T. A. Q. C. = Forest composed of *Tsuga*, *Abies* and *Quercus*, with a small amount of *Chamaecyparis obtusa*.

T. A. P. = Forest mainly composed of *Tsuga*, *Abies* and *Picea*

T. F. Q. = Forest mainly represented by *Tsuga* with a small quantity of *Fagus* and *Quercus*

T. Q. Pi. = Forest mainly represented by *Tsuga* with some amounts of *Quercus* and *Pinus densiflora*.

Z. F. Q. = Forest with a considerable amount of *Zelkowa acuminata* and some *Fagus* and *Quercus*.

Base stations

Routes traversed by the author.

Horizon of plant-formations

French Metres

English Miles

Lake Motosu

Lake Saiko

Lake Yamanaka

Fuji Imperial Preserves

Forest of Angigahara

Kamikuishiki Mura

Funazu Mura

Yoshida

Fukuchi Mura

Nabana Mura

Kamiide Mura

Fujing Mura

Tamabo Mura

Shiraito

Onuiya

Gotemba

Mts. Ashitaka

Hoyesan

Bare Region

Gotemba Route

Omiya Route (Old Route)

Omiya Route (New Route)

Suyama Route

Kawaguchi Road

Kawaguchi Pass

Kawaguchi Ridge

Kawaguchi Pass

Tenjintoge

Nishiusuzuka

Higashiusuzuka

Shiratsuka

Hinokizuka

Akadzuka

Kawansuan

Futatsutsuka

Kotoji

Sukashiri

Nabushiri

Rugatake

Aniegatake

Omurosan

Nagoyama

Kamiyama

Kawaguchi Ridge

Kawaguchi Pass

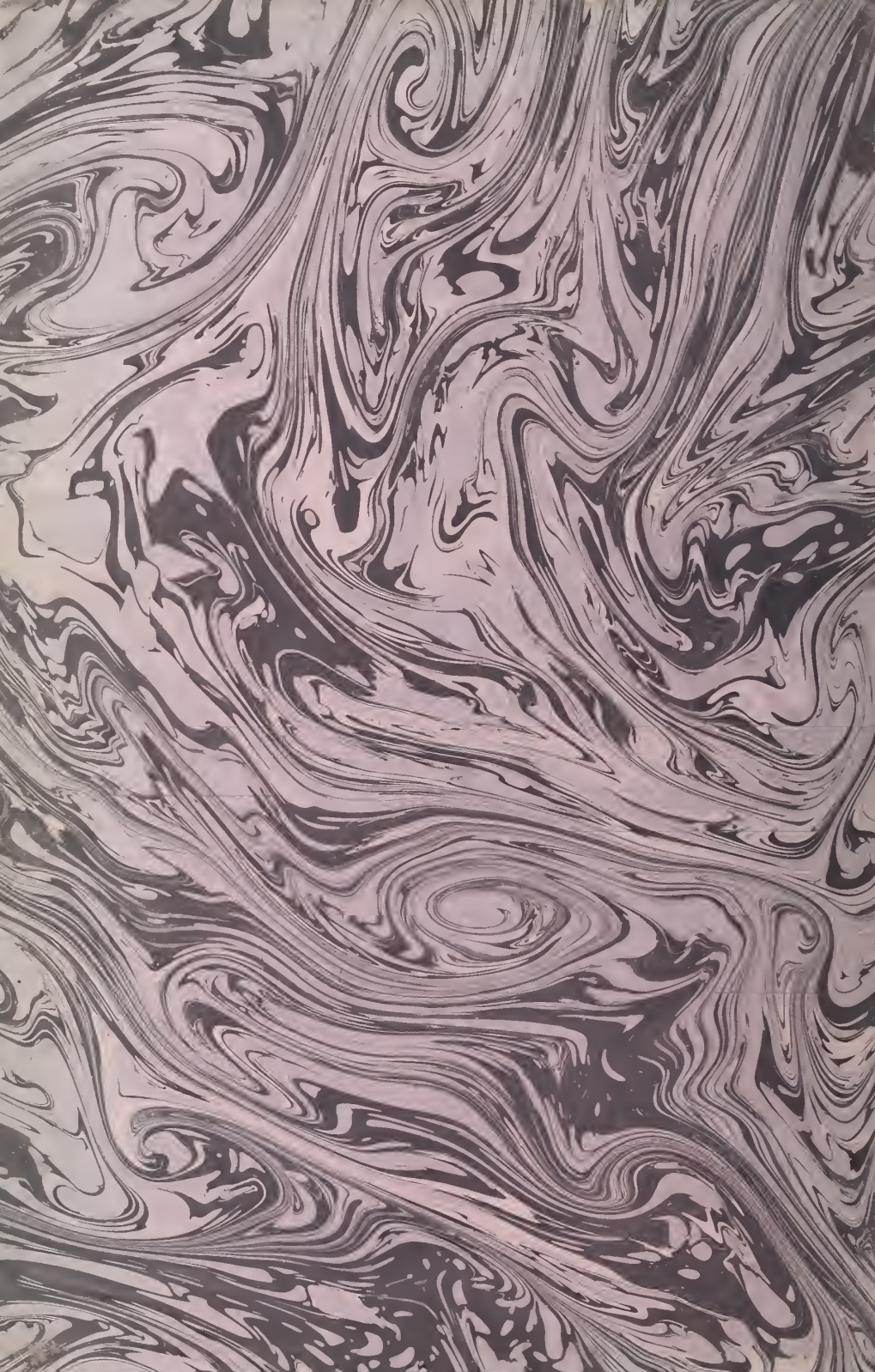
Kawaguchi Road

Kawaguchi Pass

Kawaguchi Ridge

Kawaguchi Pass

Kawaguchi Ridge

Kawaguchi Pass

Kawaguchi Ridge